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aeromet

MONTHLY PROGRESS REPORT NO. 12
for the period February 1-28, 1977
to
ENVIRONMENTAL PROTECTION AGENCY
REGION VIII

1860 Lincoln St., Suite 900
Denver, CO 80203

Contract No. 68-01-1946

Colorado C-b Tract

aeromet inc.

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1860 Lincoln St., Suite 900
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by

Aeromet, Inc.
Box FF
Norman, OK 73070

Colorado C-b Tract

1900-1901
1901-1902
1902-1903
1903-1904
1904-1905

1.0 INTRODUCTION

Low level temperature and wind data were collected for February, 1977 at Casper, Wyoming; near the Shell Oil Co. Colorado C-b Tract 25 miles west of Rio Blanco, Colorado; Craig, Colorado; Escalante and Hanksville Utah; Rock Springs, Wyoming; and the U-a/U-b Tract 5 miles south of Bonanza, Utah. The data collection was made using a 30 gm helium filled pilot balloon with a temperature sonde attached, a single theodolite and a TSR-2 receiver/recorder twice a day every other day. The observations were made $\frac{1}{2}$ hour after sunrise and 1400L.

The pilot balloon had an ascent rate of 500 ft/min and it was tracked by a single theodolite for 12 minutes with the azimuth and elevation angles recorded every 30 seconds on a cassette tape recorder. The tape was transcribed to a pilot balloon form after the observation.

The temperature sonde operated at 403 MHz and the signal was received by a ground plane antenna at least 24 ft. AGL which was attached to the Aeromet, Inc. TSR-2 receiver/recorder. The TSR-2 receiver has a built-in Rustrak strip chart recorder and the temperature was recorded within the range from -50°C to $+50^{\circ}\text{C}$. A baseline temperature calibration was performed with each T-Sonde by the adjustment of the recorded temperature to match the thermometer measured temperature next to the transmitting sonde. Once the calibration check was finished the balloon was released with the sonde attached and the temperature was recorded for at least 20 minutes. At the completion of each observation the data were mailed to Aeromet, Inc.

The Monthly Progress Report is divided into seven parts, one corresponding to each of the seven field sites. The collected temperature and wind data are accurate and have not been edited unless otherwise stated in the Pilot Balloon Summary Section. However, the obvious errors sometimes found in the recorded azimuth and elevation angles are corrected without mention. For example, the sequence of azimuth angles . . . 76.6, 75.3, 47.8, 73.8 . . . can be corrected without ambiguity. The more ambiguous errors are brought to the attention of the reader if editing has been performed, otherwise, the data are left as recorded and the filtering is left to the individual user. An example is the wind profile for Hanksville on 06/29/76 at 1300 MST found in the Monthly Progress Report No. 4. The azimuth angles starting 30 seconds after the launch and incremented by the same are as follows . . . 109.0, 110.0, 110.0, 281.0, 280.0, 282.0 . . . , while the corresponding elevation angles are as follows, . . . 60.0, 57.6, 58.7, 58.6, 52.7, 44.3 The wind speed and direction change dramatically over the interval as can be seen in the report since these data were not edited.



2.0 DATA SUMMARY

2.1 Colorado C-b Tract Field Summary

The observer that took over the responsibilities in January continued to do a good job. No major problems were experienced during the month of January.

The observer attempted 100% of the scheduled pilot balloon launches resulting in 100% recovery of the temperature data and 86% recovery of the wind data. Snow storms prevented the observer from collecting the additional 14% of wind data.



2.2 Mixing Layer Height

The average mixing layer height was computed for the morning and afternoon based on the morning and 1400L temperature soundings. The balloon release $\frac{1}{2}$ hour after sunrise is near enough to the minimum temperature to assume the correctness of the calculated mixing layer heights. The afternoon balloon release is generally not at the time of maximum heating and the user of the mixing layer height data must be aware that minor changes in the calculated values can be expected. Without equipping the field sites with minimum/maximum thermometers the extrapolation of the afternoon data can not be justified in establishing a data base for statistical analysis. The approximation of the afternoon maximum temperature would be a "calculated guess" for there are: 1) local effects which are to be determined and would be filtered out with extrapolation, 2) mountain effects which alter the lower 1500m (e.g. downslope effects), and 3) meteorological effects which can alter the expected change in the sounding (e.g. advection, moisture, etc.).

It is felt that to better define the mixing layer height that a variety of "heat island" effects should be viewed. The rigorous method would be to define 15 "heat island" effects ranging from 0 to 14°C and let the user decide which would best serve his needs. However, for these analysis 0°, +5° and +10° "heat island" effects are calculated and listed for the morning and afternoon soundings in the table Average Mixing Layer Height.

The symbol N/D means that no mixing layer height was defined and sfc is the abbreviation for surface.

2.3 Stability and Inversion Classification

The temperature and wind data were edited to remove data felt to cause anomalous results in the stability and inversion classification schemes. Only the stations listed prior to the table classifying the inversions were used in the calculations.



3.0 DATA PROCESSING

3.1 Printed and Plotted Output

Wind speeds and directions are computed from the azimuth and elevation angles measured while tracking the balloon with the theodolite. The wind speed and direction are plotted versus height and printed out at 30 second intervals. The printed output includes the AGL and MSL height of the calculated wind value and the orthogonal components of the wind. The wind profile is also punched on computer cards at 30 second intervals.

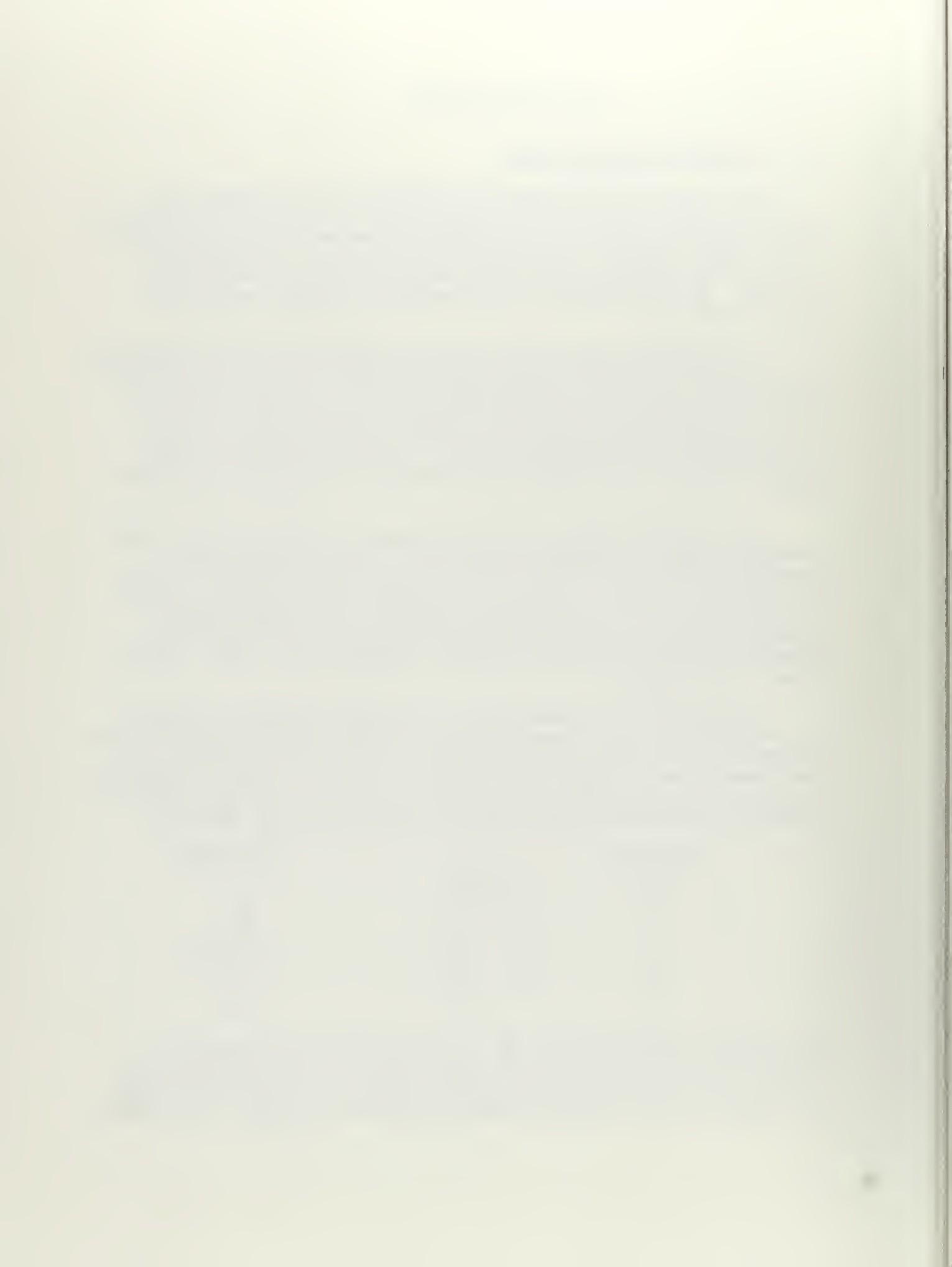
The temperature data are processed and plotted with the temperature and the lapse rate per 300 meters versus height at 15 second intervals. Tic marks are placed on the temperature plot at significant levels. A solid line to the right side of the plot indicates the data for that layer are interpolated temperature values. The temperature data are also printed out and punched on cards. The asterisk beside a height value indicates a significant level while a "?" indicates interpolated data.

The temperature data are also processed to produce for each site a monthly summary of inversion layers and lapse rates within the inversions and from the inversion base to the surface by means of the Holzworth classification scheme for inversions (Holzworth, G.C., 1974: "Climatological Data on Atmospheric Stability in the United States" Paper presented at the American Meteorological Society Symposium on Atmospheric Diffusion and Air Pollution, September 9-13, 1974. Santa Barbara, California.)

The temperature and wind data are processed together to produce for each site a monthly average bivariate frequency distribution of wind direction versus wind speed represented in the 500m layer adjacent to the ground. The distribution is presented by the six Pasquill stability classes (A-F) and a summary independent of stability. If the $\Delta T/100m$ criterion is met but the wind speed criterion is not met, then the

STABILITY CLASS	ΔT ($^{\circ}\text{C}/100\text{m}$)	WIND SPEED
A	<-1.9	<u>≤2</u>
B	-1.9 - -1.7	<u>≤5</u>
C	-1.7 - -1.5	<u>≤6</u>
D	-1.5 - -0.5	ALL SPEEDS
E	-0.5 - 1.5	<u>≤5</u>
F	>1.5	<u>≤3</u>

wind data are checked against the criterion for the next stability class, always cascading to the D stability class. Once the wind speed criterion is met the data are classified under the new stability class even though now the lapse rate exceeds the class criterion. For example,



if the $\Delta T/100m$ value is 1.7 and the wind speed is 7 m/s, the lapse rate criterion is met for the stability class F, however the wind speed criterion is exceeded. The wind speed is greater than the 5 m/s maximum limit for class E but falls within the criterion of class D, which includes all wind speeds. As a result the observational data with a ΔT value of $1.7^{\circ}\text{C}/100 \text{ m}$ and a wind speed value of 7 m/s are classified under stability class D, not class F.

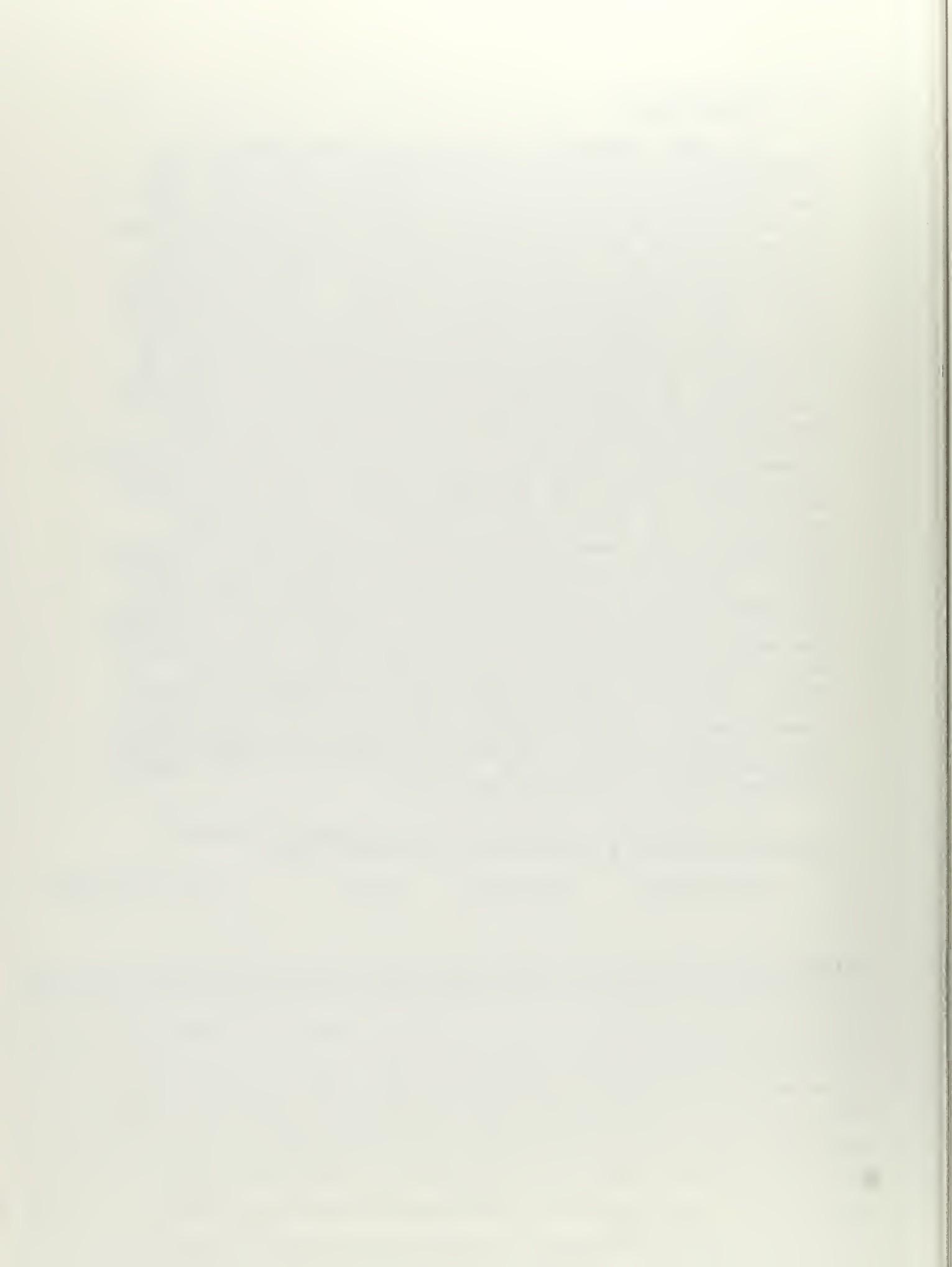
The data are also punched on computer cards in a format compatible with the STAR PROGRAM of the National Climatic Center, NOAA, U.S. Department of Commerce.



3.2 Punched Output

The punched temperature and wind data for each observation are categorized into four groups, each separated by a blank card. The first group begins with a header card listing the station name (3A4), the station elevation in meters (I4), the month, date and year (I6), the observation time (I4), the time zone (A3), the balloon ascent rate in feet per minute (I3), the sampling interval in seconds (I2), the temperature error in °C (F5.1), the T-Sonde I.D. number (I5) and the surface wind speed in kts and direction (2F6.1). A surface wind speed of 180.0 KTS indicates missing surface wind data. The series of cards prior to the first blank card include on each card the elapse time in minutes (2X,F5.1), the height of the balloon in meters AGL (4X,F5.0), the height of the balloon in meters MSL (4X,F5.0), the temperature in °C (4X,F6.2), the change in temperature between standard or significant levels (2X,F6.2), the lapse rate per 300m (2X,F6.2), the difference in the lapse rate per 300m and the dry adiabatic lapse rate per 300m (2X,F6.2), the wind speed in m/s if known (4X,F5.1), and the wind direction if known (3X,F5.0). The cards following the first blank card include on each card the elapse time in minutes (2X,F5.1), the height in meters AGL (4X,F5.0), the height in meters MSL (4X,F5.0), the u-component of the wind in m/s (4X,F6.1), the v-component of the wind in m/s (6X,F6.1), the wind speed in m/s (7X,F5.1), the wind direction (6X,F5.0), the elevation angle in degrees (F5.1) and the azimuth angle in degrees (F5.1). The cards after the second blank card include a header card like before and a series of cards with four groups of the following on each card; the height in meters AGL (F6.1), the temperature in °C (F6.2), the lapse rate °C/300m (F6.2) and a blank space (1X). The cards after the third blank card include a header card the same as described earlier, eight cards with the original digitized temperature data and a flag to indicate interpolated data (20(F3.1,I1)), five cards with the elevation angle in degrees (16F5.1), and five cards with the azimuth angle in degrees (16F5.1). The temperature data are in degrees Celsius and have 50°C added to each value. An elevation angle of 180° indicates a missing azimuth and elevation angle value.

The punched output from the bivariate frequency distribution calculations include a header card as illustrated below,



and the punched distribution data for each wind direction under each stability class in agreement with the "star" output. The stability classes are number coded as follows:

STABILITY CLASS	NUMBER CODE
A	1
B	2
C	3
D	4
E	5
F	6
Independent of Stability	7

The station I.D. numbers are as follows:

STATION	I.D. NUMBER
Casper, Wyoming	1
Colorado C-b Tract	2
Craig, Colorado	3
Escalante, Utah	4
Hanksville, Utah	5
Rock Springs, Wyoming	6
Utah U-a/U-b Tract	7

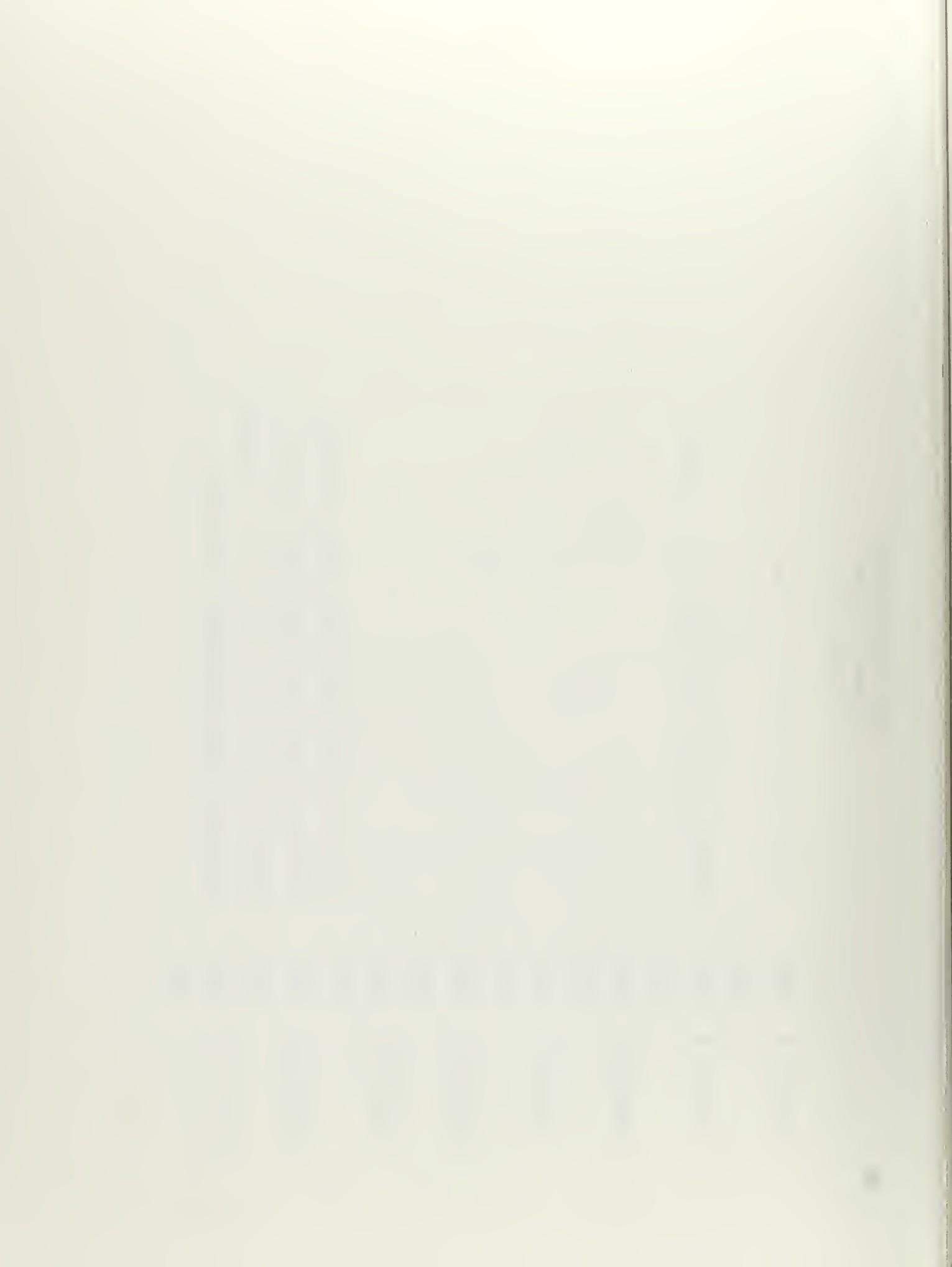
The month and season number codes are as follows:

MONTH	1-12
SEASON	13 = DJF
	14 = MAM
	15 = JJA
	16 = SON
ANNUAL	17



PILOT BALLOON SUMMARY
Colorado C-b Tract
February, 1977

February 2	0800	No wind data received due to snow.
	1400	
February 4	0820	Balloon was lost in the clouds after 3 minutes.
	1400	
February 6	0800	
	1400	
February 8	0800	
	1400	
February 10	0800	
	1400	
February 12	0800	
	1400	Balloon was lost in the clouds after 11 minutes.
February 14	0800	Balloon was lost in the clouds after 9 minutes.
	1400	Balloon was lost in the clouds after 6 1/2 minutes.
February 16	0825	Balloon was lost in haze after 7 1/2 minutes.
	1400	



PILOT BALLOON SUMMARY
Colorado C-b Tract
February, 1977

February 18	0810	
	1400	
February 21	0800	Balloon was lost in the clouds after 11 minutes.
	1400	No wind data received due to snow.
February 22	0800	No wind data received due to snow.
	1400	No wind data received due to snow.
February 24	0800	Balloon was lost in the clouds after 11 minutes.
	1400	Balloon was lost behind a hill after 7 minutes.
February 26	0800	
	1400	No wind data received due to snow.
February 28	0800	Balloon was lost in the clouds after 7 minutes.
	1400	



CLOUD COVER AND SIGNIFICANT WEATHER
Colorado C-b Tract
February, 1977

<u>DATE</u>	<u>MORNING</u>	<u>AFTERNOON</u>
2	overcast, snow	broken, snow S
4	broken	scattered
6	clear	clear
8	clear	clear
10	clear	clear
12	scattered	scattered
14	broken	overcast
16	broken	scattered
18	scattered	broken
21	broken	overcast
22	broken, snow	overcast, snow
24	broken	broken, snow south
26	scattered	overcast, snow
28	scattered	scattered



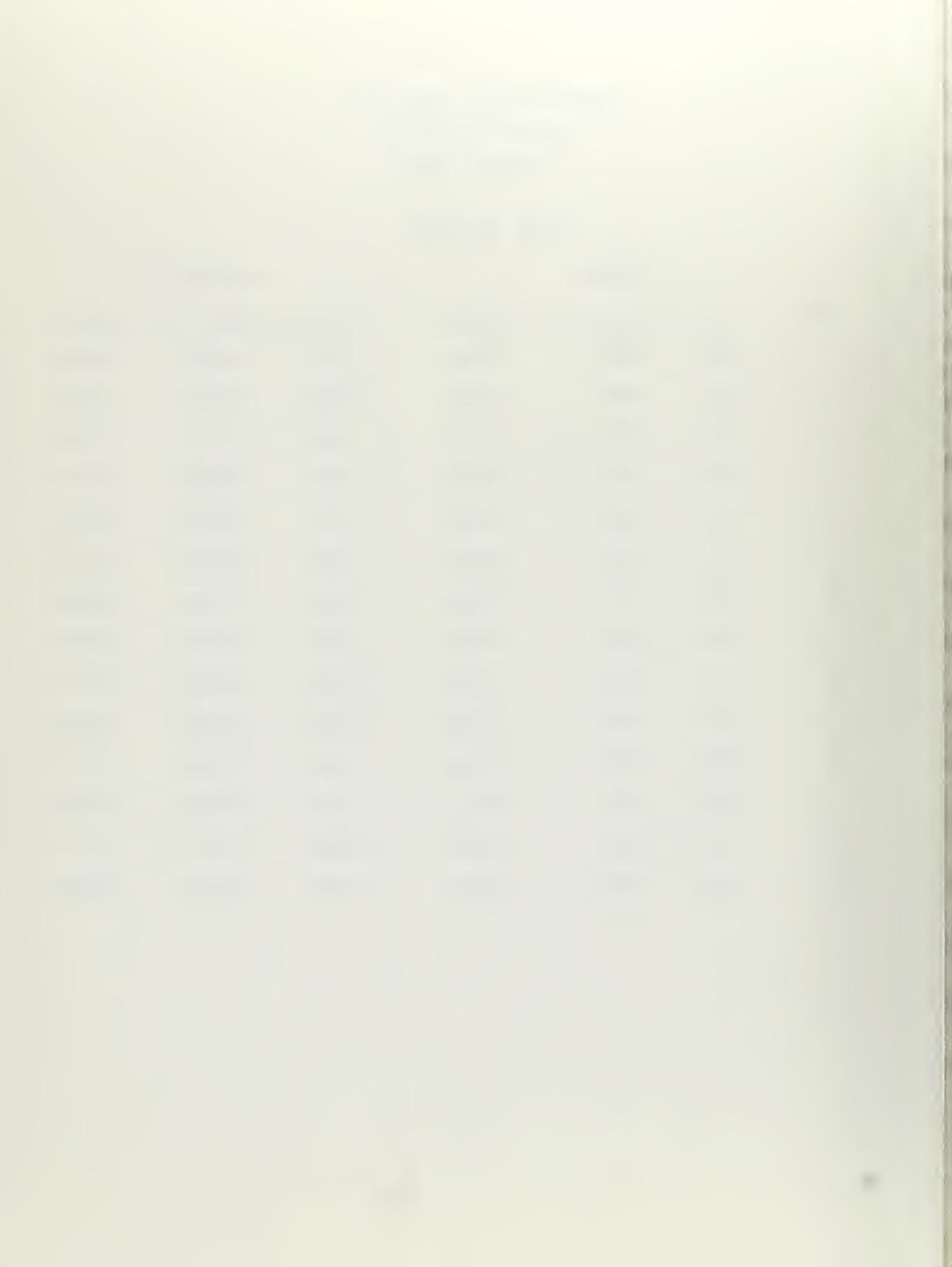
AVERAGE MIXING LAYER HEIGHT

Colorado C-B Tract

February, 1977

HEIGHT IN METERS

<u>DATE</u>	MORNING			AFTERNOON		
	<u>0°</u>	<u>+5°</u>	<u>+10°</u>	<u>0°</u>	<u>+5°</u>	<u>+10°</u>
2	200m	1000m	1700m	sfc	1250m	2600m
4	sfc	150m	400m	1100m	1350m	2100m
6	sfc	100m	200m	300m	1150m	3100m
8	sfc	50m	100m	200m	1750m	N/D
10	sfc	100m	200m	sfc	1250m	2250m
12	sfc	150m	250m	250m	2250m	N/D
14	200m	950m	2100m	1700m	2000m	3000m
16	sfc	150m	350m	sfc	1700m	2750m
18	sfc	150m	350m	1150m	3800m	N/D
21	sfc	100m	700m	2300m	2600m	3400m
22	1250m	2250m	3300m	750m	2700m	N/D
24	1200m	N/D	N/D	sfc	1000m	1450m
26	sfc	200m	1150m	2200m	N/D	N/D
28	50m	750m	1800m	1750m	1950m	3400m



COL CB TRACT ELEV 2025 METERS SOUNDING ID 0
DATE 02/02/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
166.	281.	0.0	-1.17

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4117
DATE 02/02/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	38.	0.0	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4110
DATE 02/04/77 TIME 08:20MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	495.	1.34	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4120
DATE 02/04/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
597.	635.	0.0	-1.25

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4118
DATE 02/06/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

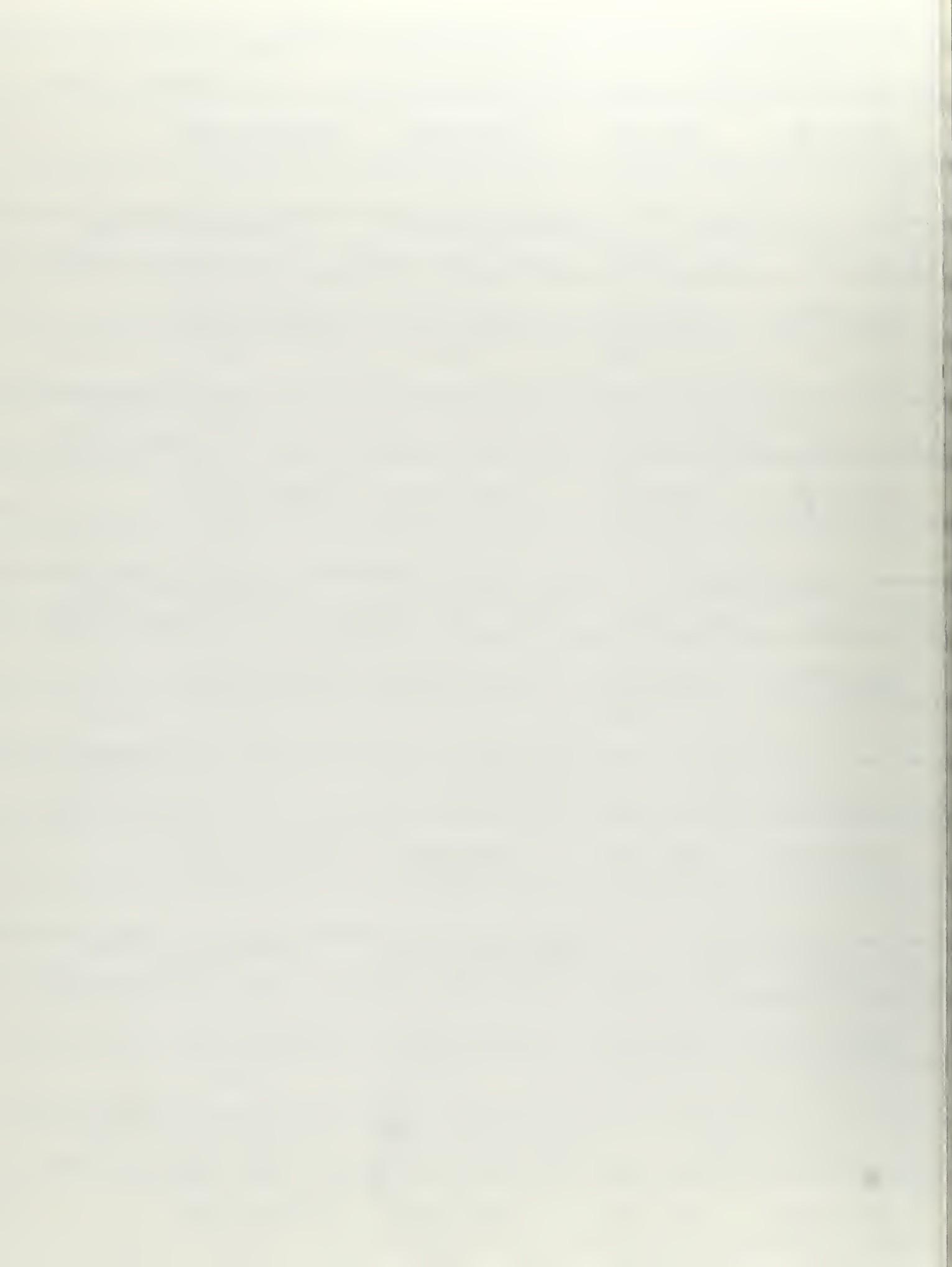
INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	610.	2.06	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4119
DATE 02/06/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
333.	371.	0.50	-1.00

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4108
DATE 02/08/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	381.	4.03	0.0



COL CB TRACT ELEV 2025 METERS SOUNDING ID 4107

DATE 02/08/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	38.	0.0	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4109

DATE 02/10/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	762.	1.89	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4124

DATE 02/10/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	38.	0.73	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4117

DATE 02/12/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	800.	1.45	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4122

DATE 02/12/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
114.	159.	0.20	-1.38

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4111

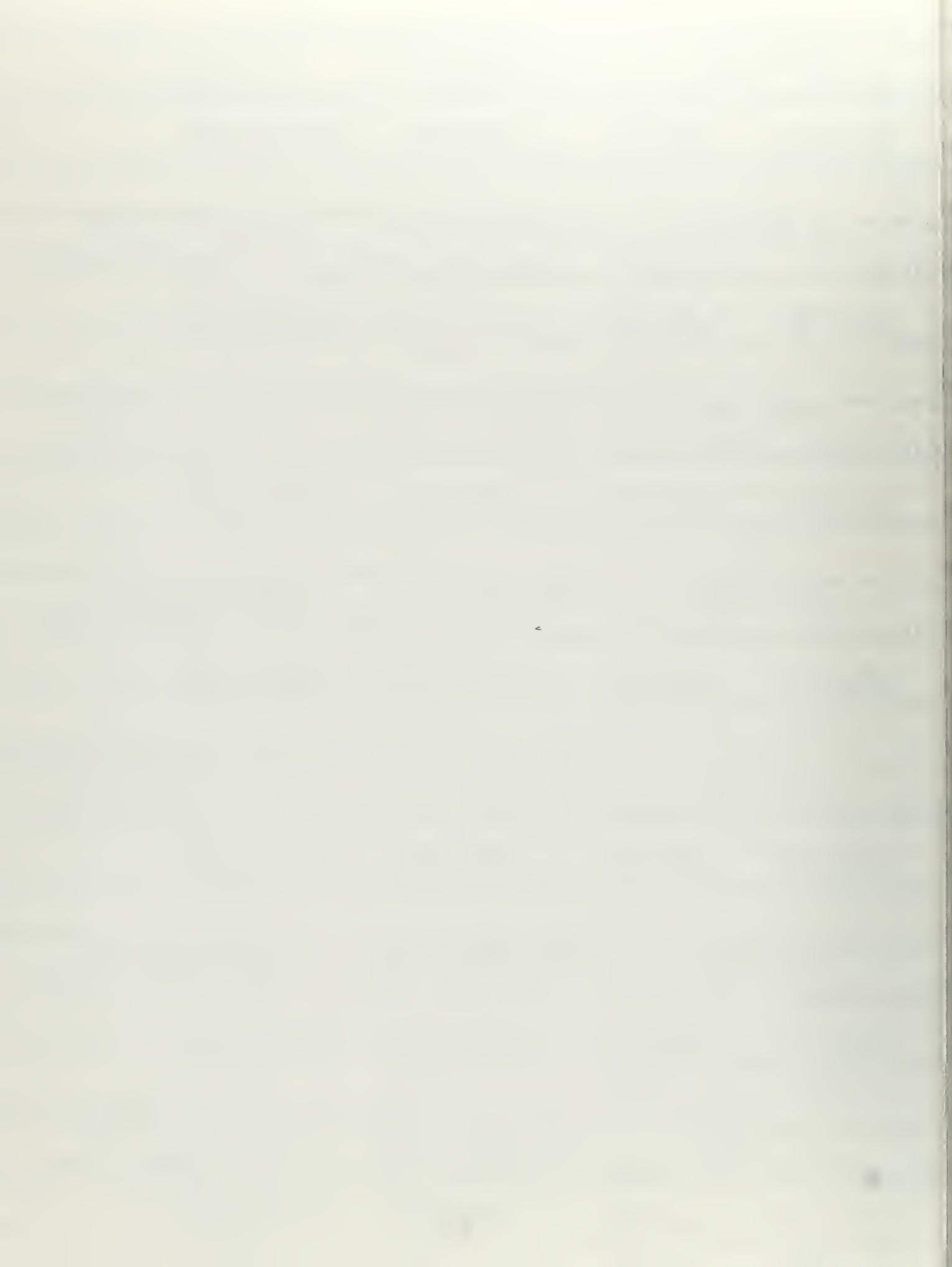
DATE 02/14/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
136.	297.	0.41	-1.76

COL CB TRACT ELEV 2025 METERS SOUNDING ID 4104

DATE 02/14/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
727.	770.	0.0	-1.16



COL CB TRACT ELEV 2025 METERS SOUNDING ID 4115
DATE 02/16/77 TIME 08:25MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	533.	1.30	0.0

***** COL CB TRACT ELEV 2025 METERS SOUNDING ID 3784
DATE 02/16/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	38.	0.97	0.0

***** COL CB TRACT ELEV 2025 METERS SOUNDING ID 3786
DATE 02/18/77 TIME 08:10MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	305.	2.26	0.0

***** COL CB TRACT ELEV 2025 METERS SOUNDING ID 3785
DATE 02/18/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
316.	354.	0.73	-1.35

***** COL CB TRACT ELEV 2025 METERS SOUNDING ID 3791
DATE 02/21/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	191.	2.92	0.0

***** COL CB TRACT ELEV 2025 METERS SOUNDING ID 3787
DATE 02/21/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

THERE ARE NO INVERSION BASES WITHIN 0M OF THE SFC

LAYER BASE METERS AGL	LAYER TOP METERS AGL	DT/DZ (DEG C)/100M
0	100.	-1.53
100	250.	-0.76
250	500.	-1.16
500	750.	-0.90
750	1000.	-1.04
1000	1500.	-1.01

***** COL CB TRACT ELEV 2025 METERS SOUNDING ID 3790
DATE 02/22/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
849.	888.	0.0	-1.00



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3778

DATE 02/22/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
530.	568.	1.26	-1.17

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3776

DATE 02/24/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
1188.	1226.	0.52	-0.97

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3777

DATE 02/24/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	152.	0.87	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3781

DATE 02/26/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
0.	419.	0.89	0.0

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3783

DATE 02/26/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

THERE ARE NO INVERSION BASES WITHIN 1500M OF THE SFC

LAYER BASE METERS AGL	LAYER TOP METERS AGL	DT/DZ (DEG C)/100M
0.	100.	-1.90
100.	250.	-0.73
250.	500.	-1.03
500.	750.	-1.09
750.	1000.	-1.05
1000.	1500.	-0.99

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3782

DATE 02/28/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
76.	267.	1.01	-0.38

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3780

DATE 02/28/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

INV BASE METERS AGL	INV TOP METERS AGL	INV DT/DZ (DEG C)/100M	DT/DZ BELOW INV (DEG C)/100M
38.	114.	0.37	-3.44



MONTH: FEBRUARY YEAR: 1977. COL CB TRACT FLEV 2025 METERS
HOLZWORTH'S CLASSIFICATION SCHEME FOR INVERSIONS
MODIFIED TO SHOW TOTAL NUMBER INSTEAD OF PERCENT



MONTH: FEBRUARY YEAR: 1977. COL CB TRACT SFC TO 500 METERS

DIRECTION	SPEED (METER/SEC)			GREATERTHAN 21 SPEED	AVERAGE SPEED	TOTAL
	0-3	4-6	7-10			
N	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0
Avg Speed	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE A STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 28 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA



MONTH: FEBRUARY YEAR: 1977. COL CB TRACT SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	0-3	4-6	7-10	SPEED (METER/SEC)	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg SPEED	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE A STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 28 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA



MONTH: FEBRUARY YEAR: 1977. COL CB TRACT SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
N	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg Speed	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE C STABILITY CLASS IS 0.0

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 28 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA



MONTH: FEBRUARY YEAR: 1977: COL CB TRACT SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	0-3	4-6	7-10	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
NNE	0.0	0.0	0.07	0.0	0.0	0.0	0.07	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SEE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg Speed	2.0	4.1	8.1	0.0	0.0	0.0	0.0	0.0
Total	0.36	0.43	0.21	0.0	0.0	0.0	0.0	1.00

RELATIVE FREQUENCY OF OCCURRENCE

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 28 SOUNDINGS DID NOT HAVE

SUSUMU FUJIWARA, TOSHIYUKI KAWABE AND MASAHIKO UEDA



MONTH: FEBRUARY YEAR: 1977 COL CB TRACT SFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	SPEED (METER/SEC)			GREATER THAN 21	AVERAGE SPEED	TOTAL
	0-3	4-6	7-10			
NNE	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.0	0.0	0.0	0.0	0.0	0.0
ENE	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.0	0.0	0.0	0.0	0.0	0.0
SEE	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0
SW	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.50	2.0	3.6	0.0	0.0	0.0

RELATIVE FREQUENCY OF OCCURRENCE OF THE E STABILITY CLASS IS 0.26

RELATIVE FREQUENCY OF CALM V.O.
A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 28 SOUNDINGS DID NOT HAVE
SOME OF THE TEMP AND WIND DATA



MONTH: FEBRUARY YEAR: 1977. COL.CB TRACT QFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	0-3	4-6	7-10	SPEED (METER/SEC)	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
NNE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NE	0.33	0.0	0.0	0.0	0.0	0.0	0.0	0.33	0.33
ENE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ESE	0.33	0.0	0.0	0.0	0.0	0.0	0.0	0.33	0.33
SE	0.33	0.0	0.0	0.0	0.0	0.0	0.0	0.33	0.33
SSE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WSW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NNW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg SPEED	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	1.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.00

RELATIVE FREQUENCY OF OCCURRENCE OF THE F STABILITY CLASS IS 0.13

RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 28 SOUNDINGS DID NOT HAVE 500 M OF TEMP AND WIND DATA



MONTH: FEBRUARY YEAR: 1977. COL CR TRACT AFC TO 500 METERS

NORMALIZED FREQUENCY DISTRIBUTION

DIRECTION	0-3	4-6	7-10	SPEED (METER/SEC)	11-16	17-21	GREATER THAN 21	AVERAGE SPEED	TOTAL
NNE	0.00	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.04
NE	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04
ENE	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.04
ESE	0.00	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.0
SSE	0.00	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.04
SSE	0.00	0.13	0.0	0.0	0.0	0.0	0.0	0.0	0.13
SSW	0.00	0.09	0.09	0.04	0.0	0.0	0.0	0.0	0.22
SW	0.00	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.04
WSW	0.00	0.0	0.0	0.09	0.0	0.0	0.0	0.0	0.09
W	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WNW	0.00	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.04
NNW	0.00	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.04
NNW	0.00	0.04	0.04	0.0	0.0	0.0	0.0	0.0	0.04
Avg SPEED	2.0	4.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	0.48	0.39	0.13	0.0	0.0	0.0	0.0	0.0	1.00

NORMALIZED FREQUENCY DISTRIBUTION INDEPENDENT OF STABILITY RELATIVE FREQUENCY OF CALM 0.0

A TOTAL OF 5 SOUNDINGS FROM A SAMPLE OF 500 M OF TEMP AND WIND DATA 28 SOUNDINGS DID NOT HAVE



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID

0

DATE 02/02/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.9	SFC		-3.21	-1.91	-2.30	0.0	2.6	360.
1.9	150	2175	-5.12	-0.22	-1.15	0.63	M	M
3.0	300	2325	-5.34	-0.22	-1.15	1.78	M	M
3.0	475	2500	-6.23	-0.89	-2.31	0.62	M	M
3.2	500	2525	-6.23	0.0	-2.31	0.62	M	M
6.3	975	3000	-8.10	-1.86	0.0	2.93	M	M
12.9	1975	4000	-8.98	-0.88	-2.72	0.21		
19.4	2975	5000	-15.53	-6.55	-2.36	0.57		

COL CB TRACT

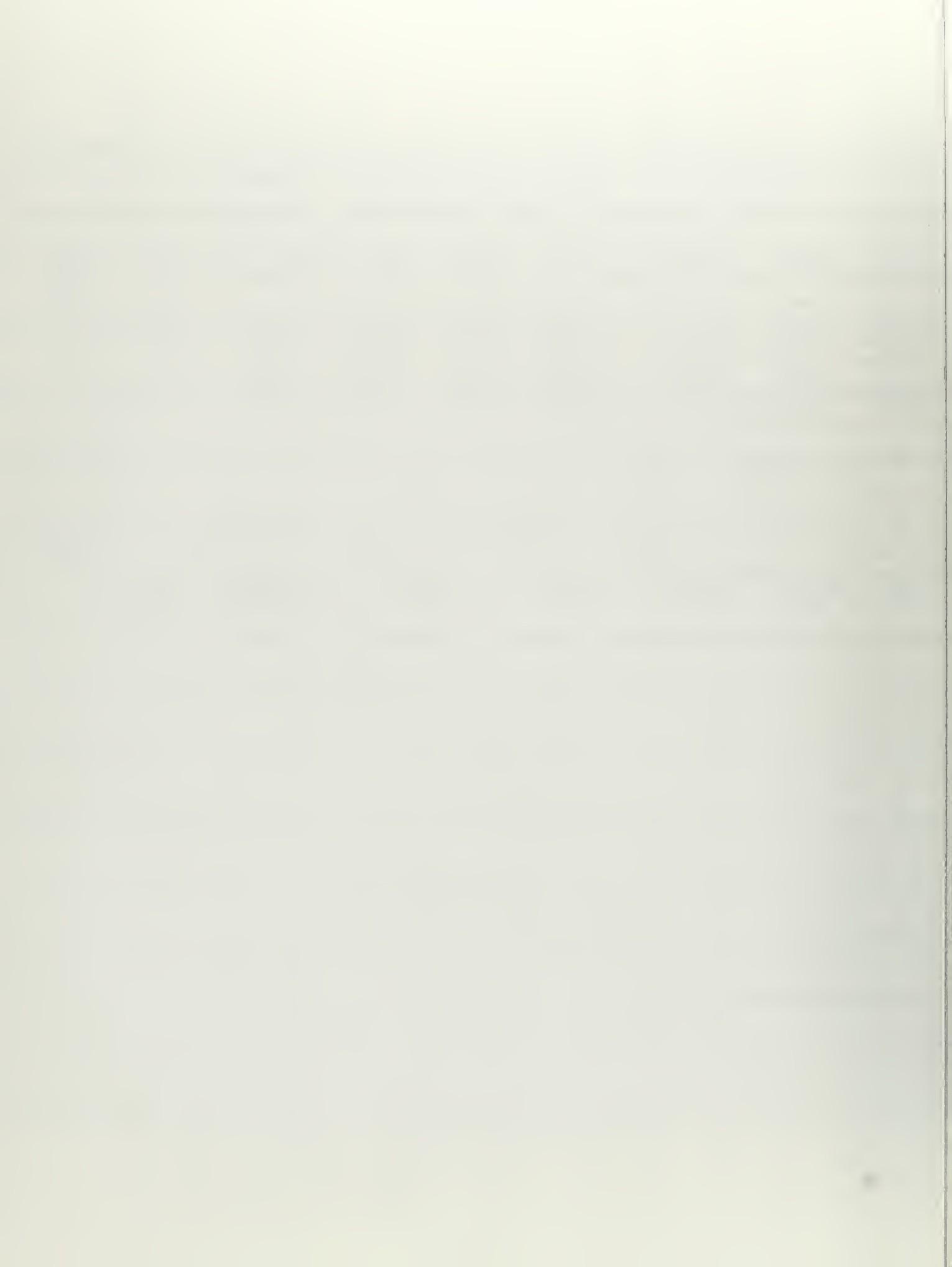
ELEV 2025 METERS

SOUNDING ID

0

DATE 02/02/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DTR DEG
0.0	0.	2025.	0.0	-2.6	2.6	360.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4117

DATE 02/02/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		1.98		0.0		5.1	315.
1.0	150	2175	1.03	-0.95	-3.20	-0.28	3.3	290.
1.9	300	2325	-0.31	-1.35	-2.08	0.85	3.7	318.
3.1	475.	2500.	-0.61	-0.31	0.0	2.93	3.0	334.
3.2	500	2525	-0.61	0.01	0.0	2.93	3.4	339.
6.0	975.	3000.	-3.99	-3.35	-1.53	1.40	8.0	348.
12.5	1975.	4000.	-9.08	-5.12	-1.75	1.18	5.8	27.
19.0	2975.	5000.	-15.04	-5.96	-0.98	1.94		
25.0	3975.	6000.	-21.89	-6.85	-2.40	0.53		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4117

DATE 02/02/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	3.6	-3.6	5.1	315.
0.5	76.	2101.	1.1	-0.3	1.1	285.
1.0	155.	2180.	3.3	-1.2	3.5	291.
1.5	234.	2250.	3.7	-1.1	3.9	288.
2.0	310.	2335.	2.3	-1.2	3.7	322.
2.5	386.	2411.	2.0	-1.1	2.5	306.
3.0	462.	2487.	1.3	-1.2	2.8	332.
3.5	539.	2564.	1.0	-1.3	4.0	345.
4.0	615.	2640.	1.0	-1.4	4.2	346.
4.5	691.	2716.	0.4	-1.4	4.1	355.
5.0	767.	2792.	0.3	-1.4	4.4	356.
5.5	843.	2868.	0.2	-1.5	5.5	358.
6.0	967.	2992.	1.8	-1.8	8.2	347.
6.5	1059.	3084.	0.0	-1.6	6.6	360.
7.0	1135.	3160.	-1.4	-1.6	7.0	12.
7.5	1211.	3236.	-3.0	-7.3	7.9	22.
8.0	1287.	3312.	-3.0	-7.2	7.9	24.
8.5	1364.	3380.	-3.0	-7.7	6.8	33.
9.0	1440.	3465.	-3.0	-1.4	5.5	33.
9.5	1516.	3541.	-1.6	-1.4	4.8	20.
10.0	1593.	3618.	-0.9	-1.5	5.3	10.
10.5	1673.	3698.	-0.9	-1.5	5.6	9.
11.0	1749.	3770.	-0.8	-1.5	5.4	9.
11.5	1825.	3850.	-1.8	-1.5	5.4	20.
12.0	1901.	3926.	-2.2	-1.5	5.6	23.
12.5	1978.	4003.	-2.6	-1.5	5.8	27.
13.0	2054.	4079.	-2.6	-1.5	5.8	27.
13.5	2130.	4155.	-2.6	-1.4	5.4	28.
14.0	2210.	4235.	-3.0	-1.5	6.2	29.
14.5	2286.	4311.	-4.6	-1.6	7.7	37.
15.0	2363.	4388.	-4.4	-1.5	7.2	37.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4110

DATE 02/04/77

TIME 08:20MST

ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
1.0	SFC		-8.98		0.0		M	M
2.0	150	2175	-5.65	3.33	2.60	5.62	2.5	104
3.0	300	2325	-3.22	2.43	3.06	5.99	1.1	176
3.0	* 457	2482	-2.34		1.14	4.07		
3.1	475.	2500.	-2.34	0.88	-0.95	1.98	M	M
3.3	500	2525	-2.52	-0.18	-0.95	1.98	M	M
6.0	975.	3000.	-4.96	-2.44	-1.34	1.59	M	M
13.0	1975.	4000.	-6.82	-1.86	-2.12	0.81		
19.5	2975.	5000.	-10.66	-3.83	-3.31	-0.38		
25.9	3975.	6000.	-18.95	-8.30	-1.98	0.94		

COL CB TRACT

FLEV 2025 METERS

SOUNDING ID 4110

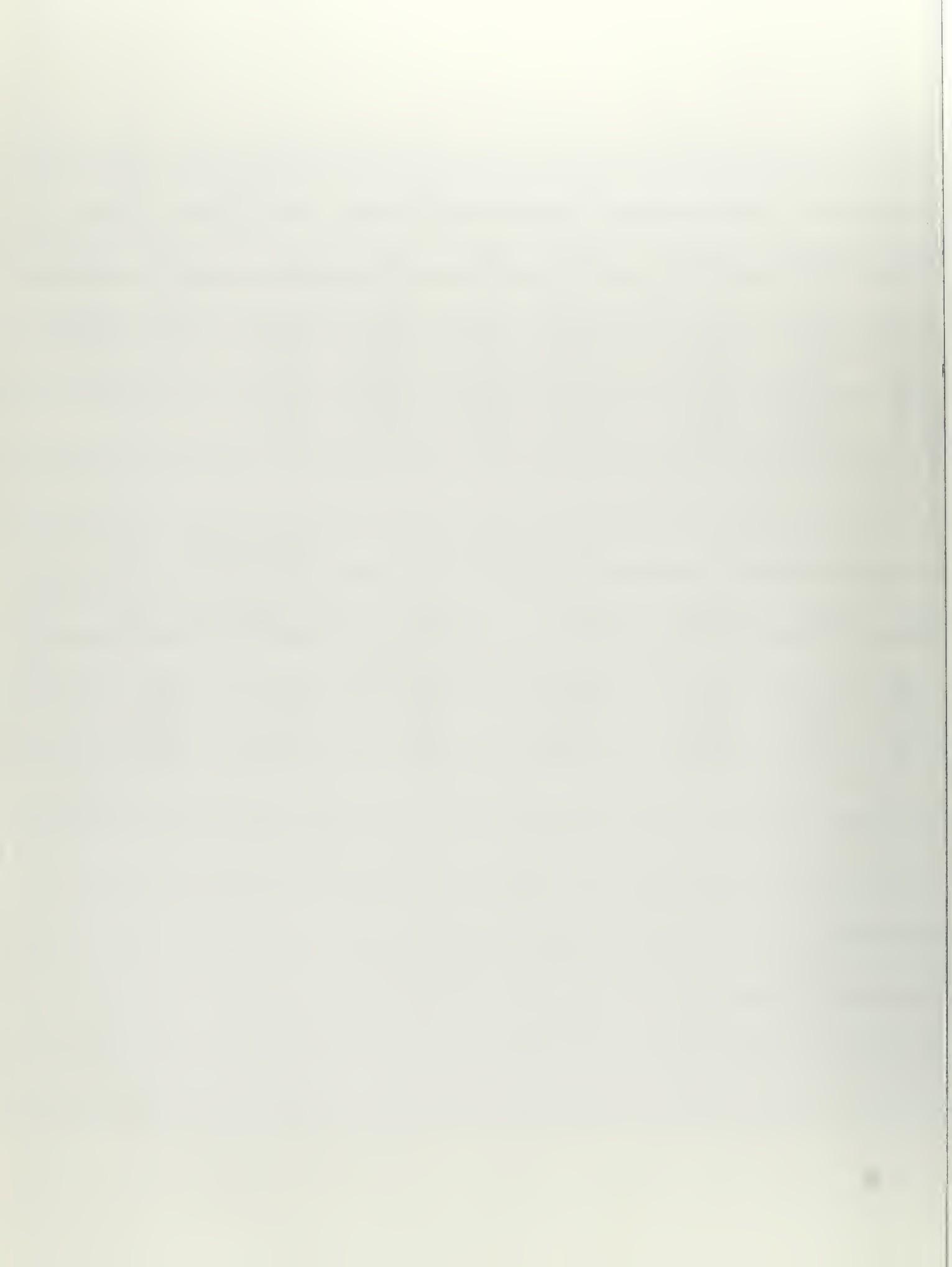
DATE 02/04/77

TIME 08:20MST

ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
THE WIND DATA ARE MISSING						
0.5	76.	2101.	-0.6	1.8	1.9	160.
1.0	152.	2177.	-2.5	0.5	2.5	102.
1.5	229.	2250.	-1.5	1.1	1.9	125.
2.0	305.	2330.	-0.0	1.0	1.0	179.
2.5	381.	2406.	0.5	1.1	1.3	206.
3.0	457.	2482.	-1.4	-0.3	1.4	79.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4120

DATE 02/04/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.7	SFC		8.39		0.0		5.1	270.
0.7	150	2175	4.98	-3.41	-5.96	-3.04	3.8	281.
1.1	300	2325	3.47	-1.52	-3.18	-0.25	5.3	291.
2.0	475	2500	2.27	-1.20	-2.44	0.49	3.5	335.
2.1	500	2525	1.99	-0.28	-2.26	0.67	3.7	343.
5.0	975	3000	-2.05	-3.85	-0.57	2.36	4.7	1.
6.0	*1127	3152	-2.05		3.41	6.34		
7.5	*1355	3380	0.35		-0.76	2.17		
11.6	1975	4000	-2.73	-0.87	0.76	3.69	8.1	87.
17.5	2975	5000	-9.86	-7.13	-3.89	-0.96		
23.8	3975	6000	-15.04	-5.18	-1.97	0.96		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4120

DATE 02/04/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	5.1	0.0	5.1	270.
0.5	76	2101	2.4	-0.3	2.5	276.
1.0	267	2292	5.5	-1.0	5.8	289.
1.5	404	2429	3.3	-1.8	3.8	298.
2.0	483	2508	1.3	-3.3	3.5	339.
2.5	559	2584	0.2	-4.4	4.4	357.
3.0	635	2660	0.9	-5.0	5.1	350.
3.5	711	2736	-0.4	-4.9	4.9	4.
4.0	798	2823	0.1	-4.7	4.7	359.
4.5	809	2924	1.8	-5.8	6.1	343.
5.0	975	3000	-0.1	-4.7	4.7	1.
5.5	1051	3076	-1.6	-4.5	4.8	19.
6.0	1127	3152	-1.8	-5.1	5.3	15.
6.5	1203	3228	-3.3	-5.9	6.8	29.
7.0	1280	3305	-5.0	-6.1	7.8	39.
7.5	1356	3381	-5.6	-4.7	7.4	50.
8.0	1432	3457	-6.5	-5.1	8.2	52.
8.5	1508	3533	-7.9	-7.5	10.9	46.
9.0	1584	3609	-7.4	-4.8	8.8	57.
9.5	1661	3686	-5.0	1.6	5.3	107.
10.0	1737	3762	-5.6	-1.9	5.9	71.
10.5	1813	3838	-5.6	-0.2	5.6	88.
11.0	1889	3914	-5.6	0.8	6.7	97.
11.5	1965	3990	-7.8	-0.4	7.9	87.
12.0	2042	4067	-9.6	-1.5	9.7	81.
12.5	2118	4143	-11.4	-2.2	11.6	79.
13.0	2194	4219	-12.9	-1.8	13.0	82.
13.5	2270	4295	-11.0	-1.4	11.0	83.
14.0	2346	4371	-12.1	-1.4	12.2	83.
14.5	2428	4453	-11.5	-1.4	11.6	83.
15.0	2523	4548	-13.1	-2.5	13.3	79.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4118

DATE 02/06/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-12.85		0.0		2.6	
1.0	150	2175	-7.42	5.43	8.47	11.40	4.7	135.
2.0	300	2325	-3.03	4.39	4.39	7.31	3.5	105.
2.8	* 419	2444	-1.09		1.33	4.26		126.
3.1	475.	2500.	-0.99	1.84	1.89	4.82	1.5	104.
3.3	500	2525	-1.00	0.18	1.89	4.82	1.4	91.
6.4	975.	3000.	-0.80	0.20	-0.19	2.74	4.7	41.
13.0	1975.	4000.	-3.51	-2.70	-1.53	1.40	9.8	18.
18.8	2975.	5000.	-10.76	-7.26	-2.73	0.20		
25.4	3975.	6000.	-15.84	-5.08	-2.96	-0.03		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4118

DATE 02/06/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-1.8	1.8	2.6	135.
0.5	76.	2101.	-1.8	2.3	2.9	142.
1.0	152.	2177.	-4.7	1.1	4.8	103.
1.5	229.	2254.	-5.2	1.1	5.3	102.
2.0	305.	2330.	-2.7	2.1	3.4	127.
2.5	381.	2406.	0.1	0.5	0.5	187.
3.0	457.	2482.	-1.5	0.6	1.6	113.
3.5	533.	2558.	-1.3	-0.3	1.3	75.
4.0	610.	2635.	-0.5	-2.4	2.5	12.
4.5	686.	2711.	-1.3	-3.3	3.5	22.
5.0	762.	2787.	-1.5	-4.6	4.8	18.
5.5	838.	2863.	-2.9	-4.0	5.0	36.
6.0	914.	2939.	-3.6	-4.0	5.4	42.
6.5	991.	3016.	-2.9	-3.4	4.5	41.
7.0	1067.	3092.	-3.0	-4.6	5.5	33.
7.5	1143.	3168.	-3.2	-5.2	6.2	32.
8.0	1219.	3244.	-3.4	-5.8	6.7	330.
8.5	1295.	3320.	-2.6	-5.3	5.9	226.
9.0	1372.	3397.	-2.5	-5.0	5.6	227.
9.5	1448.	3473.	-3.1	-5.8	6.6	228.
10.0	1524.	3549.	-4.2	-7.8	8.8	228.
10.5	1600.	3625.	-3.7	-7.1	8.0	228.
11.0	1676.	3701.	-3.3	-7.4	8.1	224.
11.5	1753.	3778.	-3.5	-9.0	9.7	221.
12.0	1829.	3854.	-3.3	-9.1	9.7	220.
12.5	1905.	3930.	-3.3	-9.5	10.0	19.
13.0	1981.	4006.	-2.9	-9.3	9.8	17.
13.5	2057.	4082.	-3.3	-9.8	10.4	19.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4119

DATE 02/06/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.9	SFC		4.17		0.0		5.1	315.
1.8	150	2175	2.49	-1.67	-3.56	-0.63	6.8	253.
2.9	300	2325	0.85	-1.64	-2.07	0.86	4.4	295.
3.1	475	2500	0.07	-0.78	-2.46	0.47	4.5	296.
6.2	500	2525	-0.12	-0.19	-2.27	0.66	4.7	296.
12.0	975	3000	-3.21	-3.39	1.91	4.84	4.5	222.
17.8	1975	4000	-7.90	-4.19	-2.52	0.41	6.9	353.
24.2	2975	5000	-15.64	-7.94	-2.17	0.76		
	3975	6000	-22.59	-6.96	-4.39	-1.46		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4119

DATE 02/06/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	3.6	-3.6	5.1	315.
0.5	76	2101	4.5	2.0	4.9	246.
1.0	162	2187	6.8	1.9	7.1	254.
1.5	255	2280	6.1	0.4	6.2	266.
2.0	333	2358	2.1	-2.2	3.1	317.
2.5	409	2434	2.6	-2.0	3.2	307.
3.0	486	2511	4.3	-1.9	4.7	294.
3.5	562	2587	3.7	-3.0	4.8	309.
4.0	638	2663	3.6	-3.6	5.1	315.
4.5	714	2739	0.8	-4.1	4.2	349.
5.0	790	2815	-1.2	-4.2	4.4	16.
5.5	870	2895	0.2	-3.2	3.2	357.
6.0	946	2971	0.2	-4.5	4.5	357.
6.5	1022	3047	-0.2	-4.6	4.6	3.
7.0	1098	3123	-1.2	-4.3	4.5	15.
7.5	1175	3200	-2.4	-4.0	4.7	30.
8.0	1251	3276	-2.4	-5.1	5.6	25.
8.5	1327	3352	-2.1	-4.6	5.1	25.
9.0	1403	3428	-1.9	-4.2	4.6	24.
9.5	1479	3504	0.2	-4.9	4.9	358.
10.0	1556	3581	0.9	-4.8	4.9	349.
10.5	1632	3657	0.6	-4.8	4.9	353.
11.0	1736	3701	1.7	-5.6	5.9	343.
11.5	1846	3871	0.9	-6.4	6.5	352.
12.0	1968	3993	0.8	-6.9	6.9	353.
12.5	2060	4085	0.6	-6.0	6.0	354.
13.0	2147	4172	1.0	-7.1	7.1	352.
13.5	2281	4306	1.5	-10.1	10.2	352.
14.0	2382	4407	0.6	-8.8	8.8	356.
14.5	2458	4483	0.4	-9.0	9.0	358.
15.0	2534	4559	1.4	-11.0	11.1	353.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4108

DATE 02/08/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-14.34		0.0		1.0	135.
1.0	150	2175	-2.08	12.26	14.92	17.85	4.1	97.
2.0	300	2325	0.44	2.53	2.64	5.57	2.7	138.
2.5	* 380	2405	1.02		0.75	3.68		
3.1	475.	2500.	0.45		0.38	2.55	3.5	201.
3.3	500.	2525	0.46	-0.19	-0.38	2.55	3.5	205.
6.4	975.	3000.	-0.90	-1.36	-0.38	2.55	3.3	258.
13.0	1975.	4000.	-4.87	-3.97	0.19	3.12		
19.4	2975.	5000.	-10.66	-5.79	-2.92	0.01		
25.7	3975.	6000.	-17.85	-7.19	-1.58	1.34		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4108

DATE 02/08/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-0.7	0.7	1.0	135.
0.5	76.	2101.	-1.1	0.8	1.3	126.
1.0	152.	2177.	-4.1	0.4	4.1	96.
1.5	229.	2254.	-4.4	1.5	4.6	109.
2.0	305.	2330.	-1.7	2.0	2.6	140.
2.5	381.	2406.	-0.0	2.7	2.7	180.
3.0	457.	2482.	1.0	3.2	3.4	197.
3.5	533.	2558.	1.9	3.1	3.6	212.
4.0	610.	2635.	0.4	2.8	2.8	189.
4.5	686.	2711.	0.0	1.8	1.8	181.
5.0	762.	2787.	0.1	1.4	1.4	184.
5.5	838.	2863.	0.9	0.9	1.3	222.
6.0	914.	2939.	2.5	0.7	2.6	254.
6.5	991.	3016.	3.4	0.7	3.5	259.
7.0	1067.	3092.	2.7	0.3	2.8	263.
7.5	1143.	3168.	3.0	1.0	3.2	252.
8.0	1219.	3244.	2.6	1.4	2.9	243.
8.5	1295.	3320.	2.2	0.8	2.4	249.
9.0	1372.	3397.	1.9	-0.3	1.9	280.
9.5	1448.	3473.	2.5	-0.6	2.6	284.
10.0	1524.	3540.	3.4	-0.5	3.4	279.
10.5	1600.	3625.	3.6	-0.4	3.6	276.
11.0	1676.	3701.	3.5	-1.3	3.7	290.
11.5	1753.	3778.	2.9	-3.6	4.6	322.
12.0	1829.	3854.	2.1	-2.8	3.5	323.
12.5	1905.	3930.	2.8	-3.2	4.3	319.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4107

DATE 02/08/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		10.25		0.0		2.6	180
1.0	150	2175	8.88	-1.37	-2.74	0.18	3.0	179
1.9	300	2325	7.94	-0.94	-3.13	-0.20	2.5	196
3.1	475	2500	5.11	-2.12	-4.08	-1.15	3.2	188
3.2	500	2525	5.17	-0.64	-4.08	-1.15	3.1	188
6.2	975	3000	1.12	-3.86	-3.39	-0.46	0.7	128
12.4	1975	4000	-3.70	-5.02	-0.19	2.74	3.6	294

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4107

DATE 02/08/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	-0.0	2.6	2.6	180
0.5	76	2101	-0.2	2.7	2.7	175
1.0	156	2181	-0.1	3.0	3.0	179
1.5	232	2257	0.3	2.7	2.8	186
2.0	308	2333	0.7	2.3	2.4	197
2.5	386	2411	0.2	2.7	2.7	185
3.0	462	2487	0.5	3.2	3.2	188
3.5	552	2577	0.4	3.0	3.0	188
4.0	644	2669	0.3	2.7	2.7	187
4.5	720	2745	-0.0	2.3	2.3	179
5.0	796	2821	0.4	2.0	2.1	190
5.5	872	2897	0.8	0.3	0.9	250
6.0	949	2974	-0.4	0.4	0.6	136
6.5	1027	3052	-0.7	0.3	0.7	114
7.0	1111	3136	-1.1	0.2	1.1	99
7.5	1212	3237	0.8	1.4	1.6	211
8.0	1299	3324	2.7	2.6	3.7	225
8.5	1375	3400	3.3	0.4	3.3	263
9.0	1451	3476	3.9	-1.0	4.0	284
9.5	1527	3552	4.9	-0.9	5.0	281
10.0	1603	3628	4.9	-0.8	5.0	280
10.5	1680	3705	4.8	-0.6	4.9	277
11.0	1756	3781	4.9	-0.7	5.0	278
11.5	1832	3857	5.5	-0.8	5.6	278
12.0	1908	3933	5.2	-1.1	5.4	282
12.5	1984	4000	3.0	-1.4	3.3	295
13.0	2061	4086	2.4	-1.4	2.8	300
13.5	2137	4162	2.4	-1.0	2.6	293



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4109

DATE 02/10/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-11.36		0.0		1.0	180.
1.0	150	2175	-5.96	5.40	10.20	13.13	2.4	102.
2.0	300	2325	-0.33	5.63	10.05	12.97	1.6	74.
2.5	*	380	2405	1.60	2.83	5.76		
3.1	475.	2500.	1.60	1.36	3.57	6.49	6.8	347.
3.3	500	2525	1.56	0.53	3.57	6.49	6.4	352.
4.0	*	609	2634	2.93	2.06	4.99		
6.4	975.	3000.	1.31	-0.24	-1.50	1.43	7.7	21.
12.8	1975.	4000.	-1.47	-2.79	-3.80	-0.87		
18.6	2975.	5000.	-9.37	-7.90	-5.25	-2.32		
24.0	3975.	6000.	-17.04	-7.67	-4.94	-2.01		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4109

DATE 02/10/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-0.0	1.0	1.0	180.
0.5	76.	2101.	-1.8	0.8	1.9	113.
1.0	152.	2177.	-2.4	0.5	2.5	102.
1.5	229.	2254.	-0.9	0.5	1.0	119.
2.0	305.	2330.	-1.6	-0.5	1.7	71.
2.5	381.	2406.	-1.7	0.7	1.9	113.
3.0	457.	2482.	2.1	-6.7	7.0	343.
3.5	533.	2558.	0.1	-5.9	5.9	360.
4.0	610.	2635.	-2.6	-7.7	8.1	19.
4.5	686.	2711.	-2.8	-6.5	7.1	23.
5.0	762.	2787.	-3.0	-8.9	9.4	19.
5.5	838.	2863.	-2.8	-8.3	8.7	19.
6.0	914.	2939.	-2.7	-7.4	7.9	20.
6.5	993.	3018.	-2.8	-7.1	7.7	22.
7.0	1069.	3090.	-3.1	-7.1	7.7	24.
7.5	1145.	3170.	-3.8	-6.5	7.5	30.
8.0	1222.	3247.	-3.5	-5.6	6.6	32.
8.5	1298.	3323.	-2.6	-4.1	4.8	33.
9.0	1398.	3423.	-2.7	-4.8	5.5	29.
9.5	1474.	3490.	-2.6	-3.9	4.7	34.
10.0	1551.	3576.	-2.7	-2.9	3.9	43.
10.5	1627.	3652.	-2.6	-2.8	3.8	42.
11.0	1703.	3728.	-2.3	-2.8	3.6	39.
11.5	1779.	3804.	-2.3	-2.7	3.5	40.
12.0	1855.	3880.	-2.5	-3.5	4.3	35.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4124

DATE 02/10/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.9	SFC		10.16		0.0		5.1	360.
1.8	150	2175	9.15	-1.01	-3.29	-0.36	3.8	346.
2.9	300	2325	7.51	-1.63	-3.13	-0.20	4.2	338.
3.1	475	2500	6.05	-1.46	-1.85	1.08	4.5	342.
6.1	500	2525	6.05	-0.01	-2.23	0.70	4.7	344.
6.1	975	3000	1.79	-3.02	-3.56	-0.64	4.5	21.
12.5	1975	4000	0.16	-2.87	-2.08	0.85	3.0	11.
18.8	2975	5000	-7.70	-7.86	-3.67	-0.74		
24.8	3975	6000	-15.34	-7.64	-2.16	0.76		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4124

DATE 02/10/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	0.0	-5.1	5.1	360.
0.5	76	2101	1.5	-2.4	2.9	328.
1.0	158	2183	0.8	-3.8	3.9	348.
1.5	238	2263	1.4	-4.5	4.8	343.
2.0	327	2352	1.6	-3.6	4.0	336.
2.5	413	2438	2.0	-3.5	4.0	330.
3.0	490	2515	1.2	-4.5	4.6	345.
3.5	566	2591	1.7	-4.6	4.9	340.
4.0	642	2667	0.3	-3.2	3.2	354.
4.5	727	2752	-0.1	-3.9	3.9	1.
5.0	804	2829	-0.0	-3.9	3.9	0.
5.5	880	2905	-0.9	-3.9	4.0	13.
6.0	956	2981	-1.6	-3.9	4.3	22.
6.5	1044	3060	-1.4	-5.3	5.5	15.
7.0	1127	3152	-0.9	-7.3	7.4	7.
7.5	1204	3220	-1.1	-6.3	6.4	10.
8.0	1280	3305	-1.0	-4.5	4.6	13.
8.5	1356	3381	-0.7	-3.3	3.4	12.
9.0	1432	3457	-0.2	-4.4	4.4	3.
9.5	1508	3533	-0.4	-5.1	5.1	5.
10.0	1585	3610	0.5	-6.2	6.2	356.
10.5	1673	3698	0.9	-6.4	6.4	352.
11.0	1749	3770	0.7	-5.1	5.1	352.
11.5	1825	3850	1.1	-3.9	4.0	345.
12.0	1901	3926	1.2	-2.6	2.8	334.
12.5	1978	4003	-0.0	-3.0	3.0	0.
13.0	2054	4079	0.1	-1.6	1.6	357.
13.5	2130	4155	-0.3	-1.1	1.1	17.
14.0	2206	4231	-0.1	-1.8	1.8	3.
14.5	2282	4307	-0.1	-2.2	2.2	2.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4117

DATE 02/12/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.5	SFC		-11.36		0.0		3.9	180.
1.0	* 76	2101	-11.55		4.47	7.40	4.0	175.
2.0	150	2175	-9.11	2.25	9.31	12.24	3.9	195.
3.1	300	2325	-3.73	5.38	7.48	10.41	3.6	223.
3.3	475	2500	0.16	2.80	3.98	6.91	3.4	224.
3.5	500	2525	0.10	1.03	3.98	6.91		
3.5	* 533	2558	0.16		3.98	6.91		
6.4	975	3000	-1.57	-1.66	-1.52	1.41	3.8	318.
13.0	1975	4000	-2.73	-1.17	-1.72	1.21	20.9	33.
19.5	2975	5000	-7.31	-4.58	-3.48	-0.55		
25.7	3975	6000	-14.04	-6.73	-2.95	-0.02		

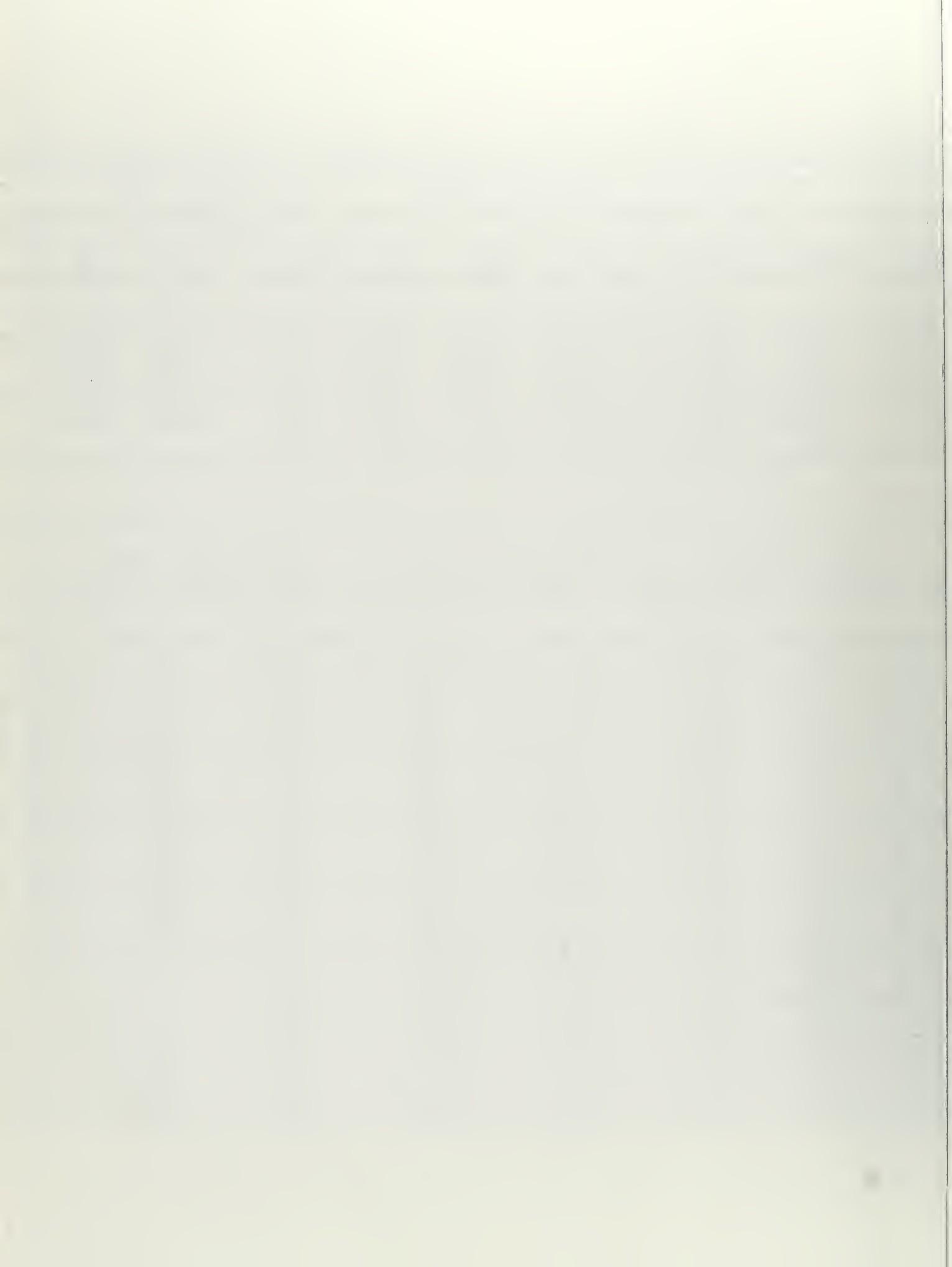
COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4117

DATE 02/12/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-0.0	3.9	3.9	180.
0.5	76	2101	0.1	1.8	1.8	182.
1.0	152	2177	-0.3	4.0	4.0	175.
1.5	229	2254	0.4	4.2	4.2	186.
2.0	305	2330	1.1	3.8	3.9	196.
2.5	381	2406	2.5	2.9	3.9	221.
3.0	457	2482	2.5	2.8	3.7	222.
3.5	533	2558	2.2	2.8	3.0	226.
4.0	610	2635	2.3	0.2	2.3	265.
4.5	686	2711	2.8	0.0	2.8	270.
5.0	762	2787	2.4	-0.1	2.4	271.
5.5	838	2863	2.1	-0.9	2.3	294.
6.0	914	2939	2.0	-1.5	2.5	307.
6.5	991	3016	2.7	-3.2	2.2	320.
7.0	1067	3092	2.3	-4.2	4.8	331.
7.5	1143	3168	1.9	-6.2	6.5	343.
8.0	1219	3244	0.7	-9.1	9.1	356.
8.5	1295	3320	0.3	-9.1	0.1	358.
9.0	1372	3397	-0.2	-11.2	11.2	1.
9.5	1448	3473	-1.4	-11.3	11.4	7.
10.0	1524	3549	-1.6	-10.7	10.9	8.
10.5	1600	3625	-2.2	-14.5	14.7	9.
11.0	1676	3701	-2.4	-16.1	16.3	8.
11.5	1753	3778	-2.7	-17.1	17.3	9.
12.0	1829	3854	-4.2	-17.3	17.8	14.
12.5	1905	3930	-4.4	-17.1	17.7	14.
13.0	1981	4006	-12.1	-17.3	21.1	35.
13.5	2057	4082	2.4	-17.6	17.8	352.
14.0	2134	4159	-6.2	-18.2	19.2	19.
14.5	2210	4235	-6.6	-17.3	18.5	21.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4122

DATE 02/12/77 TIME 14:00MST ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.9	SFC		9.32		0.0		1.3	360.
0.9	150	2175	7.83	-1.50	-1.84	1.09	0.6	30.
1.9	300	2325	6.54	-1.29	-2.96	-0.03	1.22	44.
3.1	475.	2500.	4.73	-1.41	-2.79	0.14	2.22	64.
3.2	500	2525	4.76	-0.36	-2.79	0.14	2.6	62.
5.6	975.	3000.	-0.90	-4.87	-4.74	-1.81	6.8	100.
11.6	1975.	4000.	-5.55	-5.44	-3.27	-0.34	M	M

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4122

DATE 02/12/77 TIME 14:00MST ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	0.0	-1.3	1.3	360.
0.5	76.	2101.	-0.1	-0.2	0.2	23.
1.0	159.	2184.	-0.3	-0.5	0.6	30.
1.5	235.	2260.	-0.5	-0.7	0.9	37.
2.0	311.	2336.	-0.9	-0.9	1.3	45.
2.5	387.	2412.	-1.3	-1.0	1.6	52.
3.0	463.	2488.	-1.9	-0.9	2.1	65.
3.5	544.	2560.	-2.7	-1.7	3.2	59.
4.0	627.	2652.	-4.0	-2.2	4.6	60.
4.5	724.	2749.	-5.2	-1.2	5.3	77.
5.0	834.	2859.	-6.1	0.1	6.1	91.
5.5	946.	2971.	-6.3	1.0	6.4	99.
6.0	1068.	3093.	-8.0	2.0	8.2	104.
6.5	1179.	3204.	-7.0	2.6	7.5	110.
7.0	1264.	3289.	-8.5	4.4	9.5	117.
7.5	1340.	3365.	-6.4	3.2	7.1	117.
8.0	1416.	3441.	-8.8	6.2	10.8	125.
8.5	1495.	3520.	-7.4	6.0	9.5	129.
9.0	1572.	3597.	-10.0	8.8	13.0	131.
9.5	1649.	3674.	-10.0	10.1	14.2	136.
10.0	1731.	3756.	-10.5	7.7	13.0	126.
10.5	1807.	3832.	-8.8	12.7	15.4	145.
11.0	1883.	3908.	-8.8	11.1	14.2	142.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4111

DATE 02/14/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.8	SFC		4.26	0.0	0.0	0.0	1.3	135.
0.8	150	2175	1.88	-2.38	-0.75	2.18	1.9	134.
1.8	300	2325	2.47	0.58	-1.50	1.43	3.0	107.
2.9	475	2500	1.69	-0.77	-1.88	1.05	1.7	141.
3.1	500	2525	1.24	-0.46	-3.20	-0.28	1.7	126.
6.0	* 947	2972	-0.90		1.89	4.82		
6.2	975	3000	0.83	-0.99	4.16	7.08	10.5	331.
7.0	* 1100	3125	1.22		-3.59	-0.66		
10.4	1975	4000	-8.39	-8.63	-0.58	2.35	M	M
10.8	* 2028	4053	-8.59		1.74	4.67		
13.0	* 2371	4396	-3.41		1.15	4.07		
17.0	2975	5000	-5.75	2.64	-2.50	0.43		
23.5	3975	6000	-12.45	-6.70	-1.96	0.97		

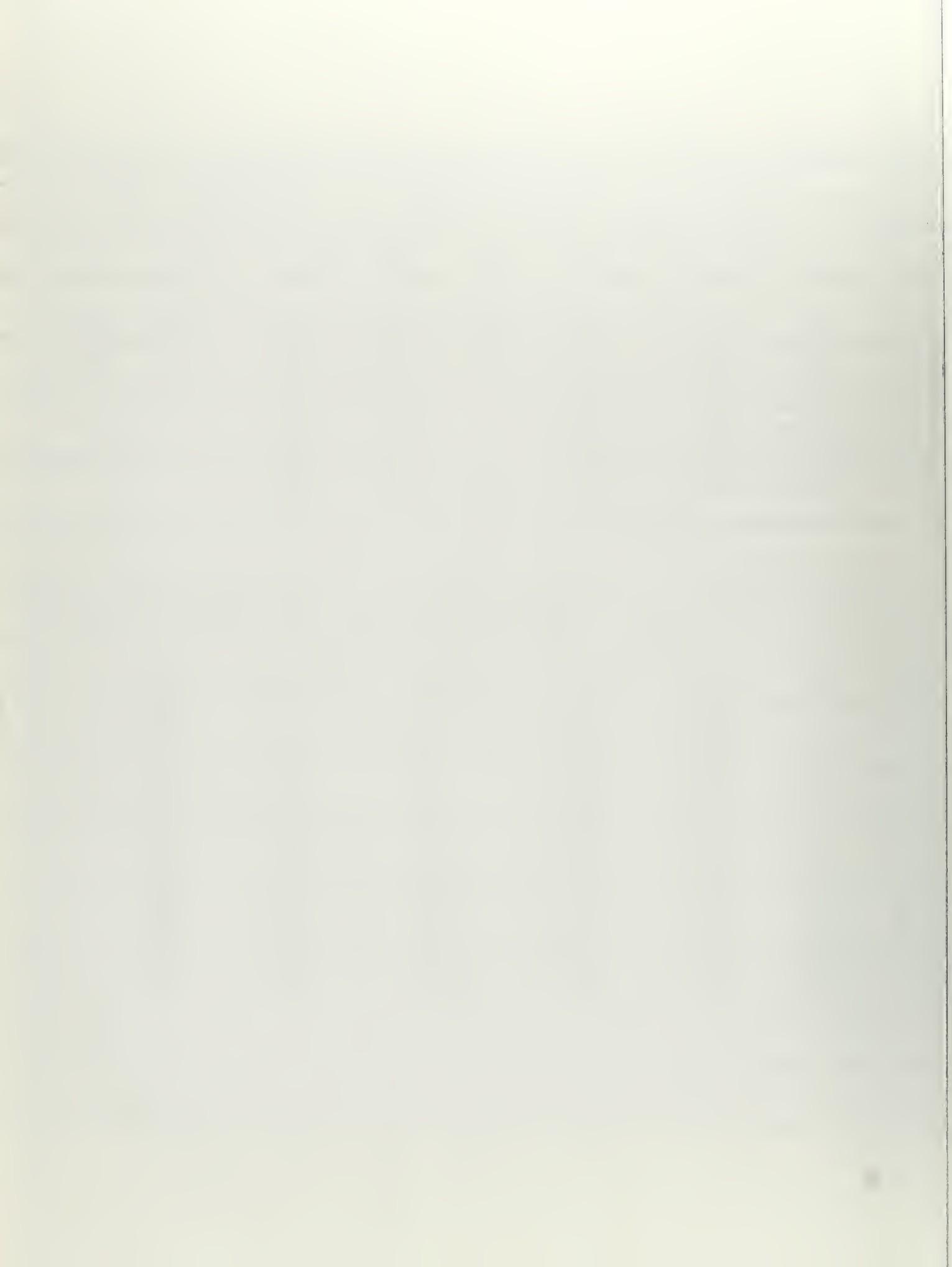
COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4111

DATE 02/14/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	-0.9	0.9	1.3	135.
0.5	76	2101	-0.2	1.4	1.4	173.
1.0	183	2208	-1.9	0.9	2.2	116.
1.5	259	2284	-3.3	0.7	3.4	102.
2.0	335	2360	-2.5	1.0	2.7	111.
2.5	412	2437	-1.3	1.2	1.8	133.
3.0	488	2513	-1.0	1.4	1.7	143.
3.5	564	2589	-1.1	-1.3	1.7	39.
4.0	643	2668	-0.8	-4.6	4.7	10.
4.5	719	2744	1.2	-4.0	4.1	344.
5.0	795	2820	2.9	-7.8	8.3	340.
5.5	871	2896	3.9	-8.9	9.7	336.
6.0	948	2973	4.9	-9.3	10.5	332.
6.5	1024	3040	5.5	-8.9	10.5	328.
7.0	1100	3125	5.7	-9.3	10.9	329.
7.5	1220	3245	6.9	-10.2	12.3	326.
8.0	1403	3428	10.2	-13.8	17.2	324.
8.5	1524	3549	12.3	-12.4	17.4	315.
9.0	1646	3671	10.5	-9.9	14.4	313.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4104

DATE 02/14/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		6.62		0.0		7.7	360.
0.8	150	2175	4.01	-2.61	-4.85	-1.92	4.1	10.
1.4	300	2325	2.62	-1.39	-4.87	-1.94	4.0	278.
2.1	475.	2500.	0.83	-1.49	-5.10	-2.17	5.4	351.
2.3	500	2525	0.86	-0.27	-5.10	-2.17	5.5	349.
4.5	975.	3000.	-5.06	-5.38	-5.37	-2.44	7.0	318.
7.8	*1718	3743	-10.37		1.94	4.87		
9.4	1975.	4000.	-8.49	-3.97	0.77	3.70	M	M
10.8	*2175	4200	-7.31		0.58	3.51		
15.3	2975	5000.	-12.74	-4.24	-2.54	0.39		
21.0	3975.	6000.	-19.66	-6.93	-0.20	2.73		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4104

DATE 02/14/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	0.0	-7.7	7.7	360.
0.5	76.	2101.	-0.4	-2.6	2.6	9.
1.0	204.	2229.	-0.9	-5.0	5.1	11.
1.5	329.	2354.	0.0	-3.7	3.7	359.
2.0	446.	2471.	0.6	-5.3	5.3	353.
2.5	544.	2569.	1.4	-5.5	5.6	346.
3.0	671.	2696.	2.5	-5.4	5.9	335.
3.5	770.	2795.	2.5	-4.3	5.0	330.
4.0	852.	2877.	3.0	-3.1	4.3	317.
4.5	973.	2998.	4.6	-5.2	7.0	318.
5.0	1082.	3107.	5.6	-6.0	8.2	317.
5.5	1209.	3234.	5.7	-7.6	9.5	323.
6.0	1339.	3364.	5.9	-7.9	9.8	323.
6.5	1471.	3496.	7.9	-9.4	12.3	320.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4115

DATE 02/16/77 TIME 08:25MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-4.97		0.0		0.5	135.
1.0	150	2175	-1.87	3.10	4.00	6.92	3.0	134.
2.0	300	2325	0.81	2.68	5.85	8.78	4.1	128.
2.5	* 380	2405	1.79		2.26	5.19		
3.1	475	2500	1.98	1.17	-0.38	2.55	2.8	95.
3.3	500	2525	1.98	0.0	-0.38	2.55	2.7	79.
6.3	975	3000	-1.38	-3.35	-2.09	0.84	10.3	330.
12.9	1975	4000	-5.06	-3.69	-0.77	2.16		
19.4	2975	5000	-10.96	-5.90	-1.37	1.56		
26.0	3975	6000	-14.34	-3.38	-1.77	1.16		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 4115

DATE 02/16/77 TIME 08:25MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	-0.4	0.4	0.5	135.
0.5	76	2101	-1.3	1.7	2.1	142.
1.0	152	2177	-2.2	2.1	3.0	134.
1.5	229	2258	-2.4	1.9	3.1	128.
2.0	305	2330	-3.3	2.6	4.2	128.
2.5	381	2406	-4.5	2.5	5.2	119.
3.0	457	2482	-2.7	0.8	2.9	106.
3.5	533	2558	-2.1	-1.3	2.5	58.
4.0	610	2635	-1.5	-2.7	3.1	29.
4.5	686	2711	-0.7	-4.1	4.2	10.
5.0	762	2787	-4.3	-0.2	4.3	88.
5.5	838	2863	2.1	-5.9	6.3	341.
6.0	925	2950	4.1	-7.9	8.9	333.
6.5	1004	3020	5.8	-9.4	11.1	328.
7.0	1080	3105	4.8	-7.8	9.2	329.
7.5	1156	3181	4.1	-7.2	8.3	330.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3784

DATE 02/16/77

TIME 14:00MST

ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.9	SFC		6.15		0.0		1.3	225.
0.9	150	2175	5.19	-0.96	-4.09	-1.16	0.6	216.
1.6	300	2325	3.75	-1.44	-5.06	-2.13	0.8	256.
2.2	475	2500	1.50	-2.11	-3.20	-0.27	1.6	231.
2.3	500	2525	1.59	-0.04	-3.20	-0.27	1.8	229.
4.9	975	3000	-2.92	-4.50	-1.90	1.02	3.6	231.
11.3	1975	4000	-7.51	-4.69	-3.28	-0.35	10.4	296.
17.8	2975	5000	-11.84	-4.24	-5.08	-2.15		
23.6	3975	6000	-16.84	-5.01	-0.79	2.14		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3784

DATE 02/16/77

TIME 14:00MST

ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	0.9	0.0	1.3	225.
0.5	76	2101	0.5	1.1	1.2	203.
1.0	159	2184	0.3	0.4	0.6	218.
1.5	279	2304	0.8	0.1	0.8	260.
2.0	410	2435	0.8	0.5	0.9	237.
2.5	553	2578	1.6	1.6	2.3	224.
3.0	651	2676	0.4	1.8	1.8	192.
3.5	729	2754	1.2	1.1	1.6	227.
4.0	806	2831	1.0	1.1	1.5	224.
4.5	905	2930	2.0	2.0	3.0	222.
5.0	1001	3026	3.1	2.2	3.8	234.
5.5	1077	3102	4.6	2.8	5.4	239.
6.0	1154	3179	6.5	3.8	7.5	240.
6.5	1230	3255	7.9	4.5	9.1	241.
7.0	1306	3331	8.9	6.6	9.6	248.
7.5	1382	3407	10.6	2.8	10.9	257.
8.0	1458	3483	10.4	0.0	10.4	266.
8.5	1535	3560	10.8	-1.2	10.9	277.
9.0	1611	3636	10.1	-2.7	10.5	285.
9.5	1687	3712	9.1	-4.2	10.1	295.
10.0	1763	3788	8.3	-3.6	9.0	293.
10.5	1839	3864	8.5	-3.6	9.2	293.
11.0	1916	3941	8.3	-4.2	9.3	297.
11.5	2004	4020	9.8	-4.8	10.9	296.
12.0	2084	4100	8.5	-5.5	10.1	303.
12.5	2160	4185	11.5	-8.4	14.2	306.
13.0	2236	4261	12.1	-8.1	14.6	304.
13.5	2312	4337	14.5	-9.4	17.3	303.
14.0	2388	4413	15.2	-8.6	17.5	300.
14.5	2465	4490	14.8	-8.2	16.9	299.
15.0	2541	4566	17.1	-10.0	19.8	300.



COL CB TRACT

FLEV 2025 METERS

SOUNDING ID 3786

DATE 02/18/77

TIME 08:10MST

ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-3.02		0.0		5.1	180
1.0	150	2175	1.10	4.12	10.17	13.10	3.5	99
1.8	* 266	2291	3.88		2.06	4.99		
2.0	300	2325	3.88	2.79	-0.56	2.37	3.2	218
3.1	475	2500	3.50	-0.21	-1.50	1.43	5.0	254
3.3	500	2525	3.51	-0.16	-1.50	1.43	4.6	253
6.4	975	3000	1.79	-1.73	-2.07	0.86	4.9	297
11.6	1975	4000	-7.02	-8.99	-3.87	-0.94	5.8	281
17.4	2975	5000	-13.95	-6.74	1.38	4.30		
23.5	3975	6000	-18.45	-4.51	0.20	3.13		

COL CB TRACT

FLEV 2025 METERS

SOUNDING ID 3786

DATE 02/18/77

TIME 08:10MST

ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-0.0	5.1	5.1	180
0.5	76.	2101.	-2.7	1.0	2.9	110
1.0	152.	2177.	-3.5	0.95	3.5	98
1.5	229.	2254.	-1.4	2.3	2.6	149
2.0	305.	2330.	2.2	2.4	3.2	222
2.5	381.	2406.	4.0	1.55	4.3	250
3.0	457.	2482.	5.0	1.55	5.3	254
3.5	533.	2558.	4.0	1.25	4.1	253
4.0	610.	2635.	3.2	0.93	3.2	264
4.5	686.	2711.	3.3	0.66	3.4	280
5.0	762.	2787.	3.0	1.04	4.2	289
5.5	838.	2863.	4.1	2.1	4.6	297
6.0	914.	2930.	4.0	1.9	4.4	296
6.5	995.	3020.	4.4	2.3	5.0	298
7.0	1072.	3097.	4.7	2.8	5.5	301
7.5	1158.	3183.	5.3	3.4	6.3	303
8.0	1251.	3276.	6.5	4.5	7.9	305
8.5	1327.	3352.	5.2	4.8	7.9	308
9.0	1403.	3428.	6.7	3.4	7.5	297
9.5	1480.	3505.	6.8	4.1	7.9	301
10.0	1556.	3581.	5.1	3.2	6.0	302
10.5	1667.	3692.	5.2	2.7	6.4	295
11.0	1838.	3863.	6.4	2.7	6.8	288
11.5	1965.	3990.	5.8	1.3	6.0	283
12.0	2044.	4060.	4.1	0.1	4.1	271
12.5	2143.	4168.	4.7	0.0	4.7	270
13.0	2232.	4257.	6.2	0.5	6.3	275
13.5	2309.	4354.	7.6	2.5	7.4	290
14.0	2411.	4436.	9.7	1.3	9.8	277
14.5	2507.	4532.	10.2	6.7	12.2	304



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3785

DATE 02/18/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.8	SFC		12.00		0.0		7.7	360.
1.4	150	2175	9.31	-2.69	-4.58	-1.65	3.3	334.
2.5	300	2325	7.76	-1.55	-1.10	-1.83	3.8	311.
2.6	475	2500.	6.34	-1.41	-4.06	-1.13	4.1	296.
5.6	500	2525	5.98	-0.37	-1.30	-1.63	4.2	293.
5.6	975	3000.	1.98	-3.70	-3.38	-0.45	5.4	272.
11.6	1975	4000.	-7.41	-7.39	-8.27	-5.34	9.3	259.
15.9	2975	5000.	-13.54	-8.44	-1.37	1.55		
22.0	3975	6000.	-19.87	-6.32	3.58	6.50		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3785

DATE 02/18/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	0.0	-7.7	7.7	360.
0.5	76.	2101.	1.0	-2.4	2.6	336.
1.0	220	2245.	1.8	-3.5	4.0	333.
1.5	316	2341.	3.0	-2.3	3.8	307.
2.0	392	2417.	3.1	-1.7	3.5	299.
2.5	482	2507.	3.7	-1.8	4.1	296.
3.0	576	2601.	4.4	-1.0	4.5	282.
3.5	652	2677.	4.7	-0.1	4.7	271.
4.0	728	2753.	5.0	-0.2	5.0	272.
4.5	806	2831.	5.4	0.1	5.4	269.
5.0	887	2912.	5.5	-0.2	5.5	272.
5.5	963	2988.	5.6	-0.3	5.6	273.
6.0	1040	3065.	4.6	0.3	4.6	266.
6.5	1121	3146.	4.8	0.1	4.9	268.
7.0	1197	3222.	4.7	0.0	4.7	270.
7.5	1280	3305.	5.5	0.6	5.6	264.
8.0	1389	3014.	6.9	0.3	6.9	268.
8.5	1465	3490.	6.4	0.9	6.5	262.
9.0	1541	3566.	6.1	1.4	6.3	257.
9.5	1618	3643.	6.1	1.8	6.3	254.
10.0	1694	3719.	5.8	2.1	6.2	250.
10.5	1770	3795.	5.6	2.6	6.1	245.
11.0	1846	3871.	6.4	2.2	6.8	251.
11.5	1931	3956.	7.1	1.5	7.3	258.
12.0	2152	4177.	17.2	1.5	17.3	265.
12.5	2324	4349.	16.3	2.3	16.5	262.
13.0	2417	4442.	11.9	1.8	12.0	262.
13.5	2497	4522.	12.6	1.1	12.6	265.
14.0	2573	4598.	11.6	1.8	11.8	261.
14.5	2663	4668.	12.5	1.7	12.6	263.
15.0	2774	4799.	13.9	1.5	14.0	264.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3791

DATE 02/21/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.3	SFC		2.74		0.0		1.0	135.
1.0	* 38	2063	5.11		0.0	0.0		
1.0	150	2175	8.18	5.44	5.17	8.09	2.1	85.
1.0	* 152	2177	8.21		5.17	8.09		
2.0	300	2325	7.48	-0.70	-3.68	-0.76	3.3	191.
2.9	475.	2500.	5.68	-1.79	-1.48	1.45	4.7	210.
3.0	500	2525	5.59	-0.10	0.37	3.30	5.1	217.
6.2	975.	3000.	5.11	-0.48	-0.56	2.37	7.7	253.
12.5	1975.	4000.	-0.41	-5.52	-2.27	0.66	13.4	260.
19.0	2975.	5000.	-6.72	-6.31	-2.89	0.04		
24.4	3975.	6000.	-13.84	-7.12	-0.39	2.54		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3791

DATE 02/21/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-0.7	0.7	1.0	135.
0.5	76.	2101.	-2.6	0.6	2.7	102.
1.0	152.	2177.	-2.1	-0.2	2.1	85.
1.5	229.	2254.	-1.2	1.8	2.2	148.
2.0	306.	2331.	0.9	3.3	3.4	195.
2.5	412.	2437.	0.6	4.0	4.0	189.
3.0	494.	2519.	2.9	4.0	4.9	216.
3.5	571.	2596.	5.5	5.9	8.0	223.
4.0	647.	2672.	7.0	4.1	8.1	240.
4.5	723.	2748.	6.6	2.5	7.1	249.
5.0	799.	2824.	7.1	2.0	7.3	254.
5.5	875.	2900.	8.0	1.8	8.2	257.
6.0	952.	2977.	7.3	2.1	7.6	254.
6.5	1028.	3053.	7.3	2.8	7.8	249.
7.0	1104.	3129.	6.8	2.4	7.2	250.
7.5	1180.	3205.	6.8	2.2	7.1	252.
8.0	1256.	3281.	6.5	2.1	6.9	252.
8.5	1335.	3360.	6.2	2.0	6.5	252.
9.0	1446.	3471.	8.4	2.9	8.9	251.
9.5	1523.	3548.	6.7	1.7	6.9	255.
10.0	1599.	3624.	7.4	1.8	7.6	256.
10.5	1675.	3700.	7.0	1.4	8.1	260.
11.0	1751.	3776.	9.8	2.1	10.0	258.
11.5	1827.	3852.	11.2	2.1	11.4	260.
12.0	1904.	3929.	12.6	2.7	12.9	258.
12.5	1980.	4005.	13.2	2.2	13.4	261.
13.0	2056.	4081.	12.4	2.3	12.6	259.
13.5	2132.	4157.	11.8	3.5	12.3	254.
14.0	2209.	4234.	10.5	2.9	10.9	255.



COL CB TRACT ELEV 2025 METERS SOUNDING ID 3787
 DATE 02/21/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
0.9	SFC		15.47		0.0		0.1	180
1.8	150	2175	13.34	-2.12	-2.51	0.41	11.0	202
2.6	300	2325	11.95	-1.40	-4.71	-1.78	7.7	207
2.7	475	2500	9.51	-2.19	-3.47	-0.54	12.1	221
5.1	500	2525	9.53	-0.22	-3.47	-0.54	12.5	222
10.3	975	3000	4.54	-4.59	-3.91	-0.98	12.1	228
10.3	1975	4000	-4.67	-9.61	-1.53	1.40	19.5	242
13.8	*2503	4528	-7.02		3.66	6.58		
14.5	*2617	4642	-4.77		0.58	3.50		
16.8	2975	5000	-5.75	-1.08	-1.54	1.39		

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3787
 DATE 02/21/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	-0.0	0.1	0.1	180
0.5	76	2101	0.7	7.3	7.3	185
1.0	172	2197	5.4	10.8	12.1	207
1.5	248	2273	3.5	8.1	8.8	203
2.0	332	2357	3.5	6.1	7.1	210
2.5	456	2481	7.5	9.1	11.8	220
3.0	567	2592	9.0	9.4	13.6	226
3.5	649	2674	8.9	8.1	12.0	228
4.0	740	2765	9.6	9.2	13.3	226
4.5	841	2866	9.3	8.8	12.8	226
5.0	953	2978	8.6	7.9	11.7	227
5.5	1066	3091	10.7	8.8	13.9	231
6.0	1163	3188	10.5	7.9	13.1	233
6.5	1263	3288	10.3	7.6	12.8	234
7.0	1351	3376	9.6	6.5	11.6	236
7.5	1437	3462	10.6	7.0	12.7	237
8.0	1552	3577	12.9	8.2	15.3	238
8.5	1656	3681	12.9	8.4	15.3	237
9.0	1750	3775	13.7	8.5	16.1	238
9.5	1849	3878	15.8	8.1	17.7	243
10.0	1928	3953	19.0	9.8	21.4	243
10.5	2004	4029	16.1	8.8	18.4	241
11.0	2080	4105	18.7	10.9	21.7	240



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3790

DATE 02/22/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-1.57		0.0		2.6	315.
1.0	150	2175	-3.20	-1.63	-2.86	0.06	M	M
1.8	300	2325	-5.09	-1.89	-4.22	-1.29	M	M
2.8	475	2500	-6.70	-1.61	-2.51	0.42	M	M
2.9	500	2525	-6.72	-0.02	-2.51	0.42	M	M
5.8	975	3000	-11.54	-4.82	-2.93	0.00	M	M
12.3	1975	4000	-17.44	-5.91	-1.58	1.35		
18.8	2975	5000	-21.48	-4.03	-3.59	-0.66		
24.3	3975	6000	-29.23	-7.75	-2.02	0.91		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3790

DATE 02/22/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	1.8	-1.8	2.6	315.



COL CB TRACT ELEV 2025 METERS SOUNDING ID 3778
 DATE 02/22/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		4.45		0.0		2.6	270.
0.8	150	2175	1.89	-2.56	-3.01	-0.08	M	M
1.7	300	2325	0.84	-1.05	-3.21	-0.28	M	M
2.7	475.	2500.	-1.35	-2.19	-2.27	0.66	M	M
2.8	500.	2525.	-1.74	-0.39	-1.90	1.03	M	M
5.9	975.	3000.	-4.76	-3.01	-3.26	-0.35	M	M
11.6	1975.	4000.	-12.05	-7.29	-2.54	0.38	M	M
17.9	2975.	5000.	-17.05	-5.00	1.38	4.31		
23.6	3975.	6000.	-25.40	-8.40	-3.01	-0.08		

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3778
 DATE 02/22/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	2.6	0.0	2.6	270.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3776

DATE 02/24/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-1.67		0.0		7.7	270.
1.0	150	2175	-3.01	-1.35	-2.86	0.07	4.8	256.
1.9	300	2325	-4.82	-1.81	-3.83	-0.91	8.5	264.
2.9	475.	2500.	-6.43	-1.59	-3.28	-0.35	12.0	263.
3.0	500	2525	-6.89	-0.48	-3.28	-0.35	12.3	264.
5.8	975.	3000.	-11.65	-4.75	-3.90	-0.98	13.2	269.
11.9	1975.	4000.	-18.85	-7.22	-3.17	-0.25	M	
18.1	2975.	5000.	-27.18	-8.33	-2.61	0.31	M	

COL CB TRACT

FLEV 2025 METERS

SOUNDING ID 3776

DATE 02/24/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	7.7	0.0	7.7	270.
0.5	76	2101	3.1	1.3	3.4	248.
1.0	152	2177	4.7	1.1	4.9	257.
1.5	229	2250	7.7	0.6	7.7	266.
2.0	322	2347	8.7	0.9	8.8	264.
2.5	414	2430	10.9	1.9	11.1	260.
3.0	495	2520	12.2	1.3	12.3	264.
3.5	578	2603	11.3	1.3	11.4	264.
4.0	658	2687	10.6	1.3	10.7	263.
4.5	749	2774	12.6	1.5	12.7	263.
5.0	842	2867	14.0	1.7	14.0	267.
5.5	926	2951	13.2	1.5	13.3	268.
6.0	1016	3041	13.1	0.0	13.1	270.
6.5	1110	3135	13.4	0.6	13.4	272.
7.0	1188	3213	12.8	1.2	12.8	276.
7.5	1264	3280	13.1	1.6	13.2	277.
8.0	1342	3367	12.5	0.8	12.6	274.
8.5	1418	3447	11.3	0.4	11.3	272.
9.0	1494	3519	12.8	0.9	12.9	266.
9.5	1577	3602	14.1	1.0	14.2	266.
10.0	1670	3695	14.2	1.0	14.2	266.
10.5	1756	3781	13.4	0.6	13.5	267.
11.0	1832	3857	10.4	0.9	10.4	265.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3777

DATE 02/24/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		5.39		0.0		10.3	270
1.0	150	2175	6.71	1.31	-1.67	1.26	4.9	242
1.9	300	2325	4.93	-1.78	-1.86	1.07	7.6	248
3.0	475	2500	2.84	-1.40	-2.62	0.31	8.7	249
3.2	500	2525	2.90	-0.63	-2.62	0.31	9.5	247
6.1	975	3000	-0.80	-2.58	-3.97	-1.04	11.8	239
11.9	1975	4000	-1.76	-2.08	-5.14	-2.21	M	M
16.1	2975	5000	-11.64	-9.89	-2.73	0.20		
21.1	3975	6000	-17.95	-6.30	-3.96	-1.03		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3777

DATE 02/24/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0	2025	10.3	0.0	10.3	270
0.5	76	2101	2.2	1.4	2.6	238
1.0	152	2177	4.4	2.3	5.0	242
1.5	229	2254	5.8	2.4	6.2	247
2.0	316	2341	7.3	3.0	7.9	248
2.5	392	2417	7.1	3.7	8.0	243
3.0	468	2493	7.9	2.9	8.5	250
3.5	553	2578	10.1	5.1	11.3	243
4.0	630	2655	9.0	4.9	10.3	242
4.5	706	2731	8.3	3.8	9.1	245
5.0	782	2807	7.5	3.4	8.3	246
5.5	858	2883	7.3	4.3	8.5	240
6.0	958	2983	9.5	5.8	11.1	239
6.5	1119	3144	15.0	9.0	17.6	239
7.0	1207	3232	9.0	3.9	9.8	247



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3781

DATE 02/26/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-11.06		0.0			
1.0	150	2175	-8.70	2.36	3.49	6.42	4.6	95.
1.8	* 266	2291	-7.31		1.16	4.09		
2.0	300	2325	-7.41	1.29	0.19	3.12	5.3	142.
3.1	475.	2500.	-8.10	-0.38	-2.32	0.61	4.6	145.
3.3	500	2525	-8.08	-0.29	-2.32	0.61	4.3	149.
6.2	975.	3000.	-12.05	-3.57	-1.37	1.56	4.1	202.
12.7	1975.	4000.	-17.55	-5.70	-1.98	0.95	9.7	263.
19.2	2975.	5000.	-20.57	-3.23	-1.59	1.34		
25.7	3975.	6000.	-27.08	-6.51	-3.63	-0.70		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3781

DATE 02/26/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPED M/S	WND DIR DEG
THE WIND DATA ARE MISSING						
0.5	76.	2101.	-4.9	1.8	5.2	110.
1.0	152.	2177.	-4.6	0.3	4.6	94.
1.5	229.	2254.	-2.2	2.1	3.0	134.
2.0	305.	2330.	-3.3	4.4	5.5	143.
2.5	381.	2406.	-3.1	4.7	5.7	147.
3.0	457.	2482.	-3.0	3.9	4.9	142.
3.5	533.	2558.	-1.7	3.4	3.8	154.
4.0	610.	2635.	-0.2	3.7	3.7	176.
4.5	686.	2711.	1.2	4.1	4.3	196.
5.0	762.	2787.	2.2	4.0	4.5	209.
5.5	838.	2863.	2.2	3.7	4.3	210.
6.0	940.	2965.	1.6	4.1	4.4	202.
6.5	1025.	3050.	1.4	3.4	3.7	202.
7.0	1101.	3126.	0.9	1.8	2.0	205.
7.5	1177.	3202.	1.2	1.0	1.6	229.
8.0	1253.	3278.	1.3	1.5	2.0	222.
8.5	1329.	3354.	1.9	0.5	1.9	255.
9.0	1406.	3431.	3.1	1.1	3.3	250.
9.5	1482.	3507.	5.5	2.5	6.0	246.
10.0	1558.	3583.	6.6	4.0	7.7	239.
10.5	1634.	3650.	7.9	4.7	9.2	239.
11.0	1710.	3735.	9.0	3.2	9.5	250.
11.5	1787.	3812.	8.6	2.2	8.9	256.
12.0	1863.	3888.	8.8	2.0	9.1	257.
12.5	1939.	3964.	9.3	1.2	9.4	263.
13.0	2015.	4040.	9.9	1.5	10.0	262.
13.5	2091.	4116.	10.9	-0.1	10.9	270.
14.0	2168.	4193.	11.1	-0.3	11.1	271.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3783

DATE 02/26/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		3.60		0.0		M	M
0.8	150	2175	1.04	-2.56	-3.60	-0.67	M	M
1.6	300	2325	-0.22	-1.25	-4.19	-1.26	M	M
2.4	475	2500	-1.96	-1.75	-4.78	-1.86	M	M
2.5	500	2525	-1.99	-0.02	-4.78	-1.86	M	M
4.3	975	3000	-7.81	-5.82	-6.99	-4.06	M	M
8.4	1975	4000	-16.85	-9.05	-2.97	-0.05	M	M
13.7	2975	5000	-25.38	-8.53	-3.62	-0.70		
19.9	3975	6000	-32.99	-7.61	-3.05	-0.12		

COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3783

DATE 02/26/77 TIME 14:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
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THE WIND DATA ARE MISSING



COL CB TRACT ELEV 2025 METERS SOUNDING ID 3782
 DATE 02/28/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		-2.92		0.0		2.6	135.
0.5	* 76	2101	-3.21		0.95	3.88		
1.0	150	2175	-2.45	0.47	2.86	5.78	2.4	102.
1.8	* 266	2291	-1.28		0.19	3.12		
2.0	300	2325	-2.14		-0.76	2.17	3.8	188.
3.1	475.	2500.	-3.31		-0.19	2.74	2.1	199.
3.3	500	2525	-3.30		-0.17	2.74	2.3	211.
5.8	975.	3000.	-7.61		-4.29	0.19	3.12	2.3
12.3	1975.	4000.	-11.55		-3.97	-1.95	0.98	294.
18.8	2975.	5000.	-16.43		-4.88	-0.79	2.14	
24.1	3975.	6000.	-24.73		-8.29	-2.01	0.92	

COL CB TRACT ELEV 2025 METERS SOUNDING ID 3782
 DATE 02/28/77 TIME 08:00MST ASCENT RATE 500 FPM DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPEED M/S	WND DIR DEG
0.0	0.	2025.	-1.8	1.8	2.6	135.
0.5	76.	2101.	-1.7	0.5	1.8	105.
1.0	152.	2177.	-2.4	0.5	2.4	101.
1.5	229.	2254.	-0.6	2.9	2.9	168.
2.0	305.	2330.	0.6	3.8	3.9	189.
2.5	381.	2406.	0.8	2.6	2.7	196.
3.0	457.	2482.	0.3	1.9	2.0	190.
3.5	533.	2558.	1.0	1.7	2.6	227.
4.0	613.	2638.	3.1	2.1	3.8	236.
4.5	689.	2714.	4.5	1.6	4.7	251.
5.0	768.	2793.	3.0	0.2	3.0	266.
5.5	803.	2928.	2.4	0.2	2.4	266.
6.0	1008.	3033.	1.8	-1.4	2.3	307.
6.5	1084.	3109.	2.9	-1.3	3.2	294.
7.0	1160.	3185.	2.6	-3.6	4.4	325.



COL CB TRACT

ELEV 2025 METERS

SOUNDING ID 3780

DATE 02/28/77 TIME 14:00MST ASCENT RATE 500 FPM

DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	TEMP DEG C	D/T STD	D/T 300M	D/T LAPSE	WS M/S	WD DEG
	SFC		8.49		0.0		5.1	180.
1.0	150	2175	7.37	-1.12	-3.51	-0.58	6.9	195.
1.8	300	2325	5.58	-1.79	-1.86	1.07	5.2	191.
2.7	475	2500	3.03	-1.89	-5.98	-3.06	3.5	192.
2.8	500	2525	3.07	-0.62	-5.98	-3.06	3.8	191.
5.0	975	3000	-2.15	-4.62	-4.76	-1.83	3.8	185.
8.0	*1794	3819	-8.89		5.60	8.53		
9.2	1975	4000	-5.55	-3.62	-1.54	1.30	6.7	268.
15.3	2975	5000	-12.04	-6.88	-2.93	-0.00		
21.5	3975	6000	-18.55	-6.51	-1.98	0.95		

COL CB TRACT

ELEV 2025 METERS

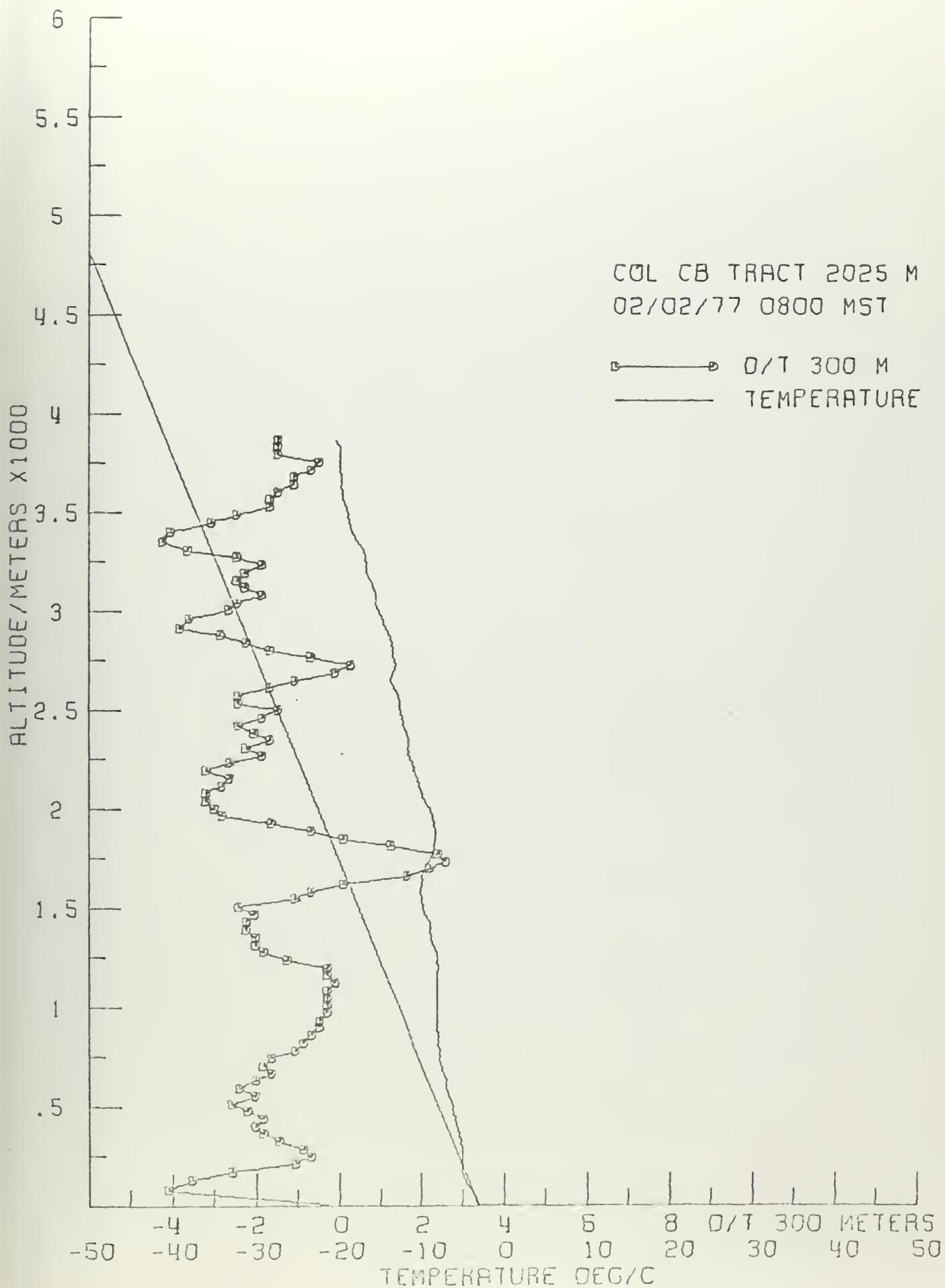
SOUNDING ID 3780

DATE 02/28/77 TIME 14:00MST ASCENT RATE 500 FPM

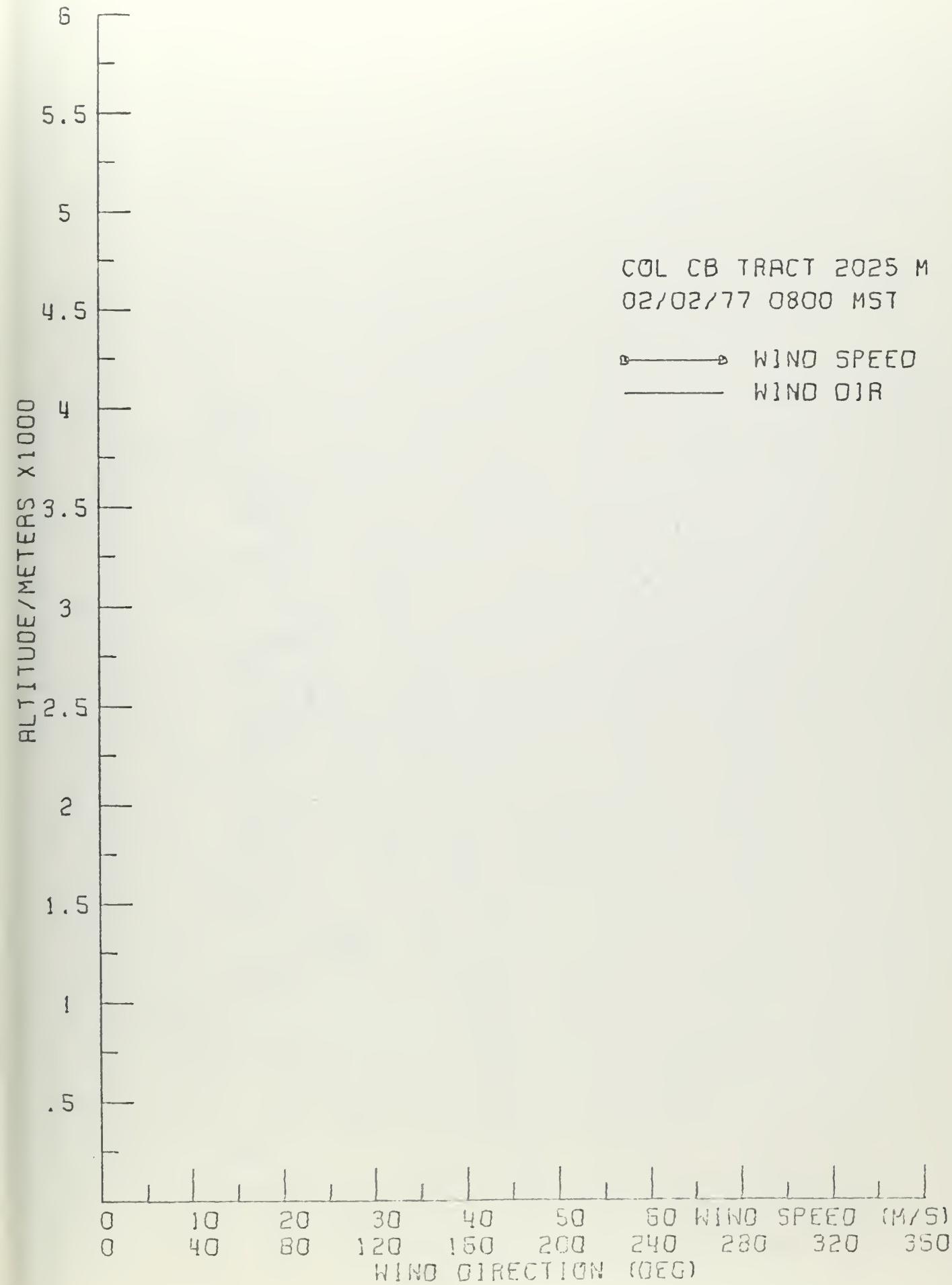
DATA INTERVAL 15 SEC.

TIME MIN	HEIGHT M (AGL)	HEIGHT M (MSL)	U-COMP M/S	V-COMP M/S	WND SPFED M/S	WND DIR DEG
0.0	0.	2025.	-0.0	5.1	5.1	180.
0.5	76.	2101.	1.8	5.7	6.0	198.
1.0	152.	2177.	1.7	6.7	6.9	195.
1.5	244.	2269.	1.1	5.1	5.2	192.
2.0	340.	2365.	0.9	5.2	5.3	190.
2.5	426.	2451.	0.6	2.8	2.9	193.
3.0	537.	2562.	0.8	4.2	4.3	191.
3.5	680.	2705.	0.9	6.0	6.0	189.
4.0	785.	2810.	-0.4	4.0	4.1	174.
4.5	881.	2906.	-0.4	3.9	3.9	175.
5.0	974.	2990.	0.4	3.8	3.8	186.
5.5	1068.	3093.	-0.4	3.0	3.0	172.
6.0	1189.	3214.	-0.5	3.6	3.6	171.
6.5	1350.	3375.	2.0	3.2	3.8	212.
7.0	1560.	3585.	3.3	7.3	8.0	204.
7.5	1714.	3730.	3.3	5.7	6.6	210.
8.0	1794.	3819.	3.6	2.6	4.4	235.
8.5	1870.	3895.	6.4	0.2	6.4	268.
9.0	1946.	3971.	6.9	0.7	6.9	264.
9.5	2023.	4048.	6.3	-0.5	6.0	275.
10.0	2090.	4124.	4.3	-0.6	4.4	278.
10.5	2175.	4200.	3.3	-1.9	3.8	300.
11.0	2251.	4276.	4.0	-0.7	4.1	279.
11.5	2327.	4352.	6.9	-0.1	6.9	270.
12.0	2404.	4420.	8.8	0.2	8.8	269.
12.5	2480.	4505.	8.8	-0.5	8.8	273.
13.0	2578.	4603.	0.4	-0.0	0.4	270.
13.5	2691.	4716.	10.9	-0.2	10.9	271.
14.0	2771.	4796.	10.6	-0.6	10.6	274.
14.5	2847.	4872.	10.2	0.2	10.2	269.
15.0	2927.	4952.	10.9	1.2	11.0	264.

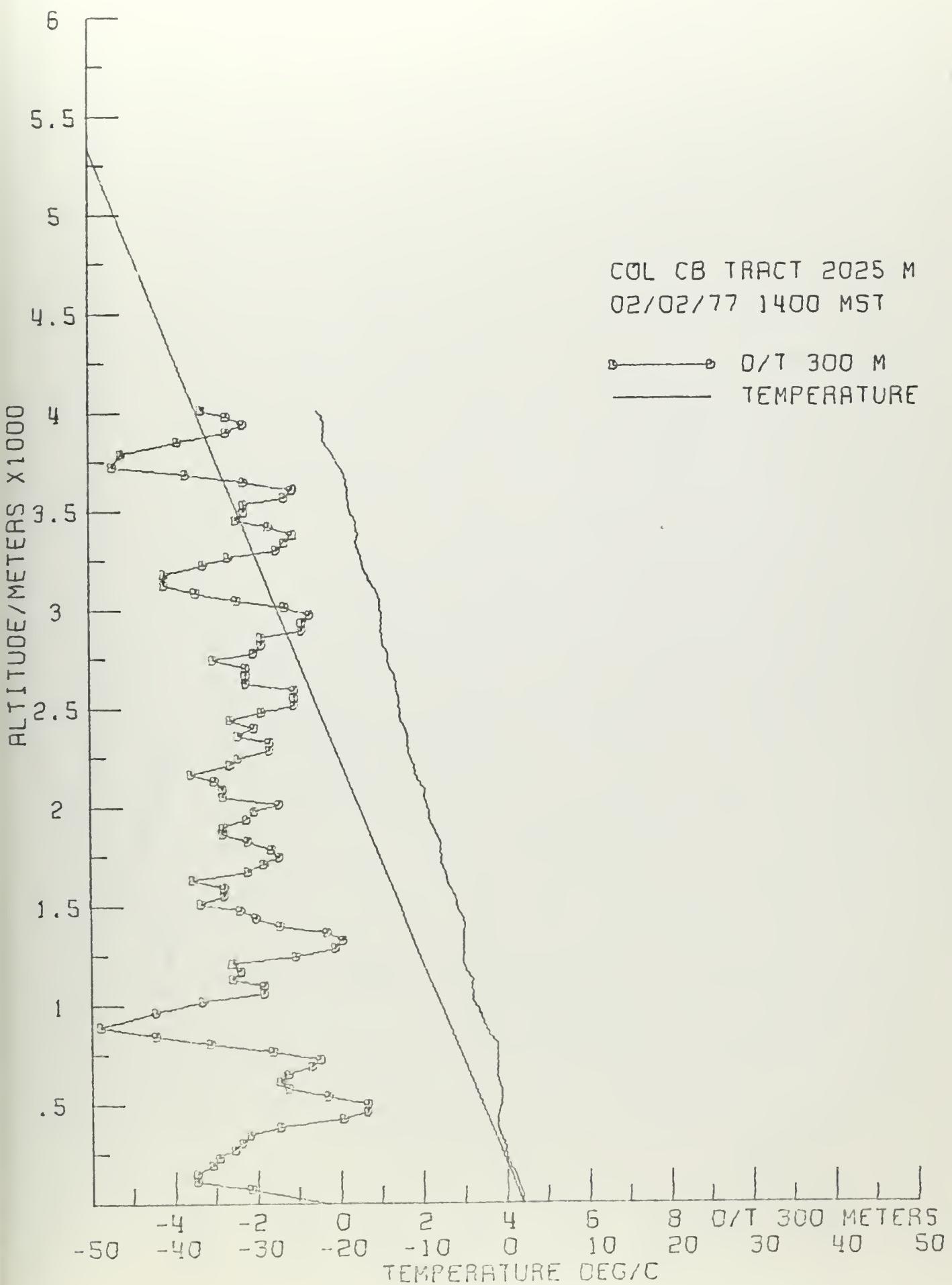




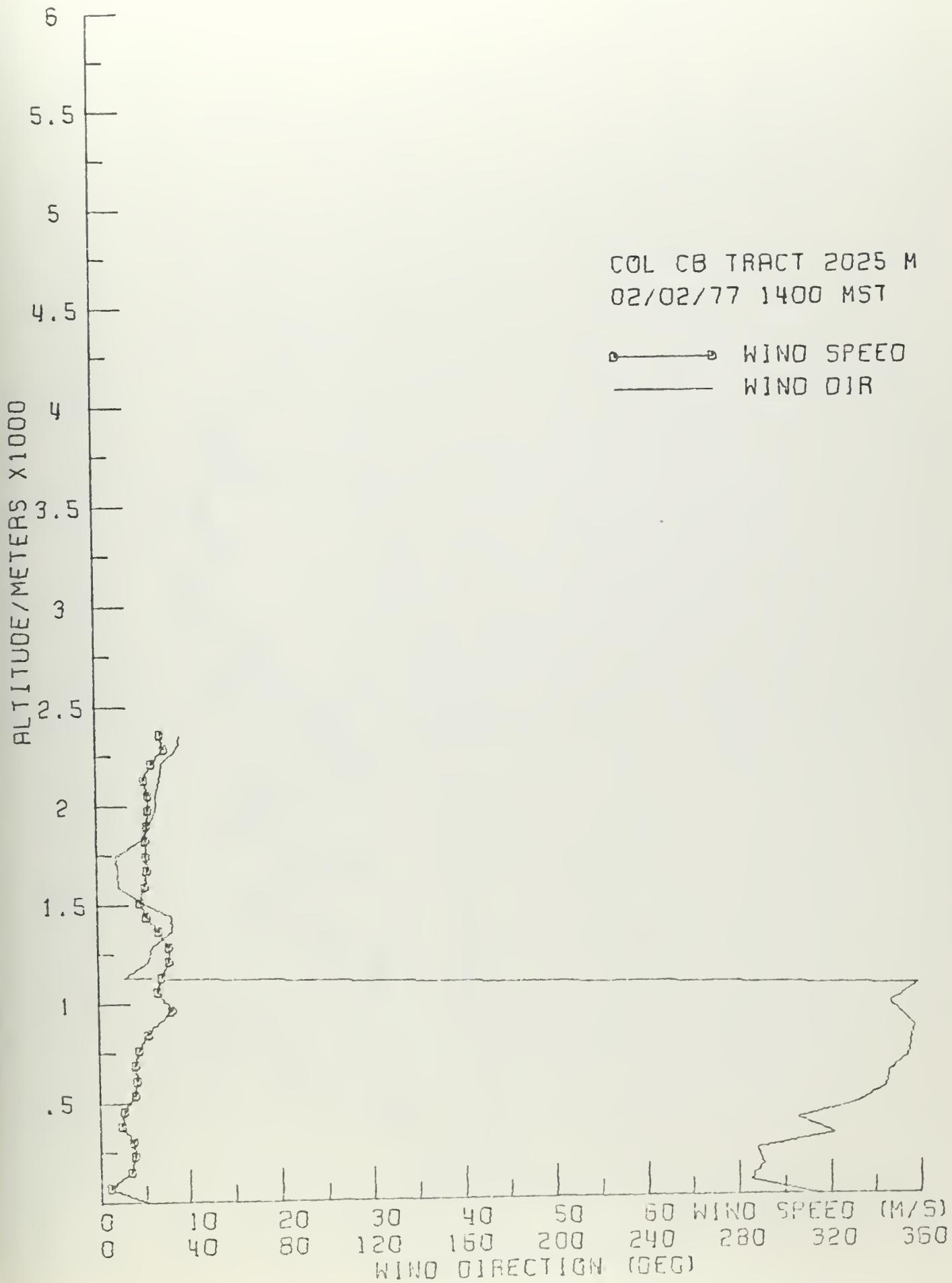




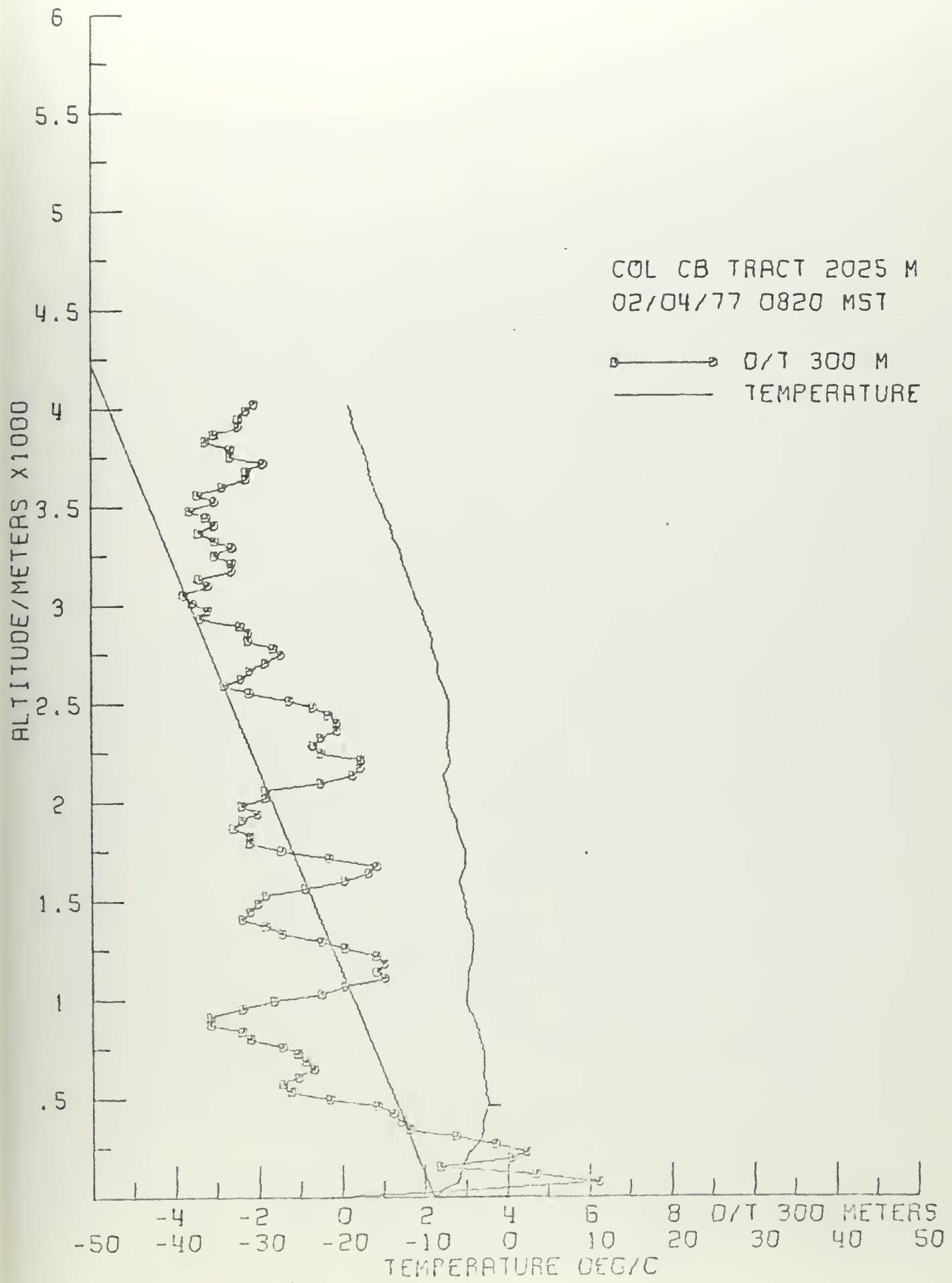




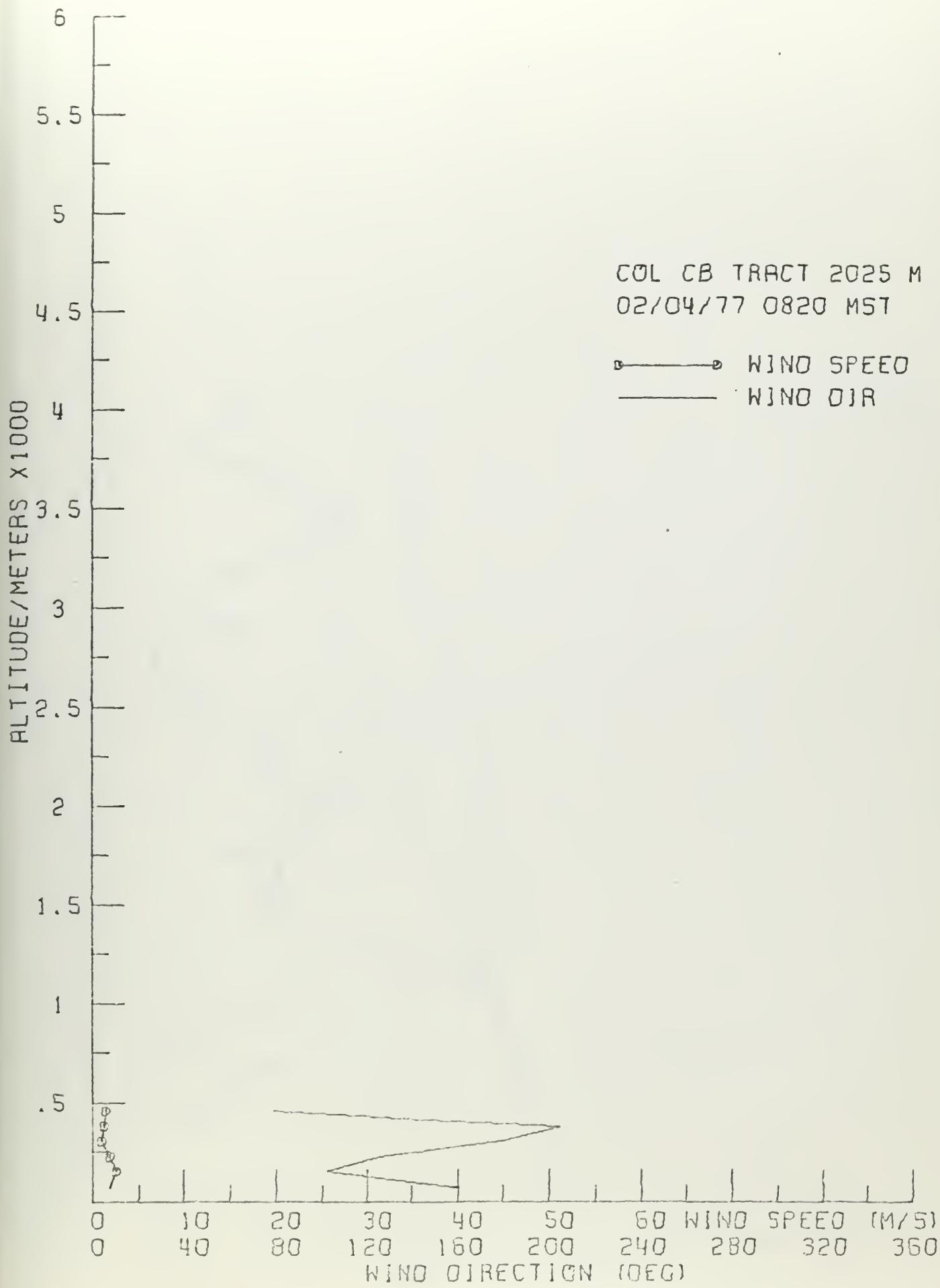




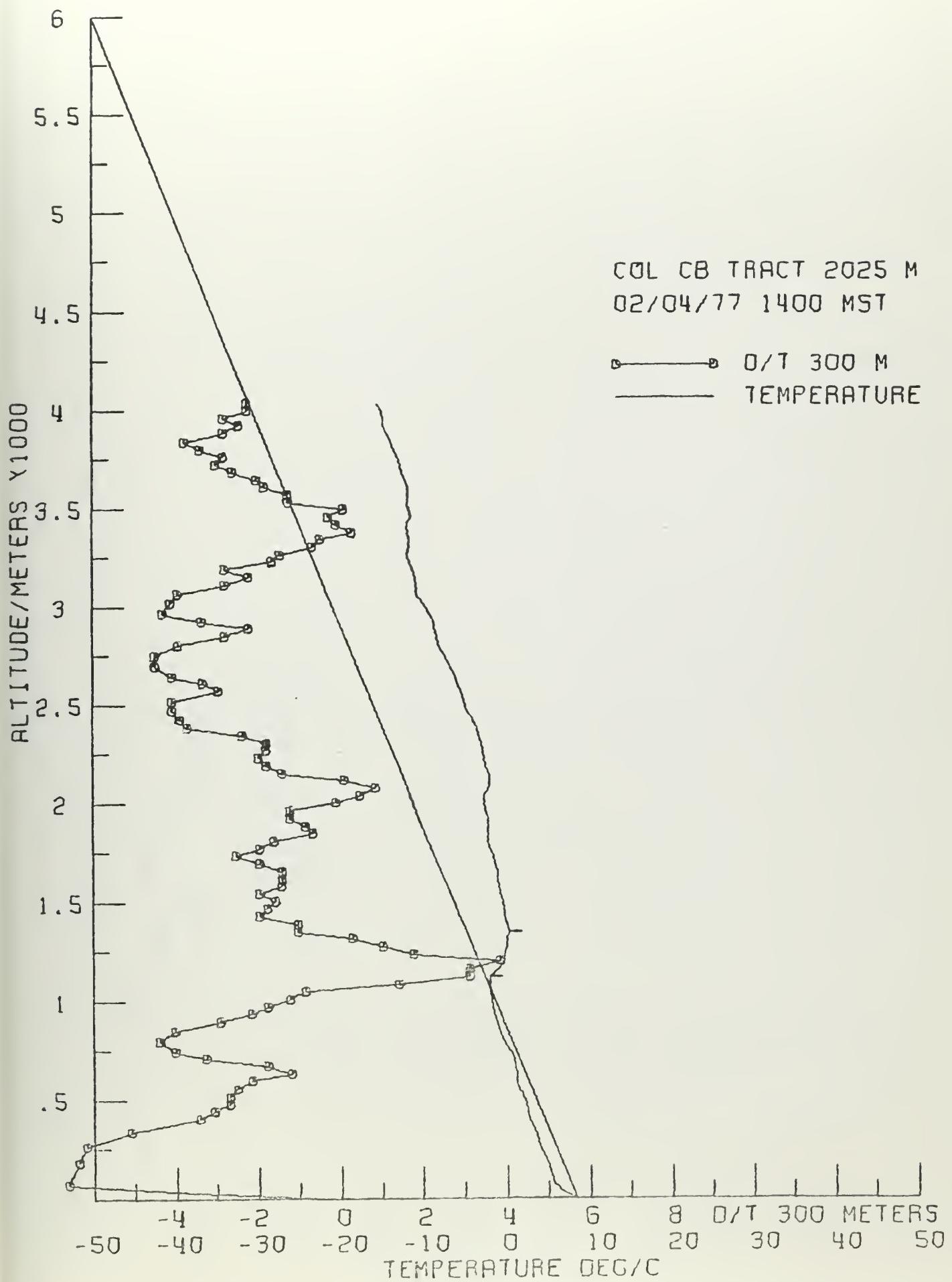


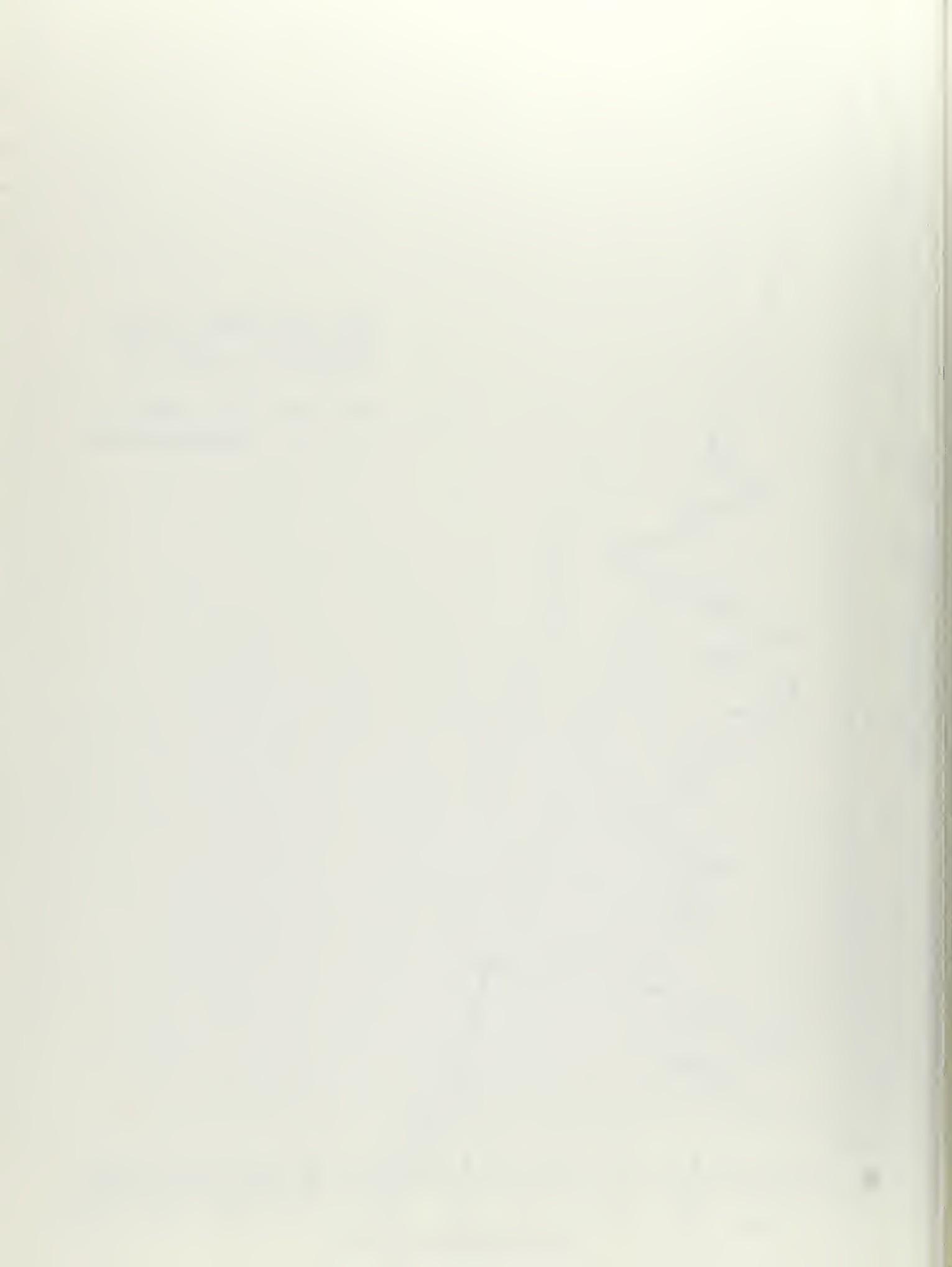


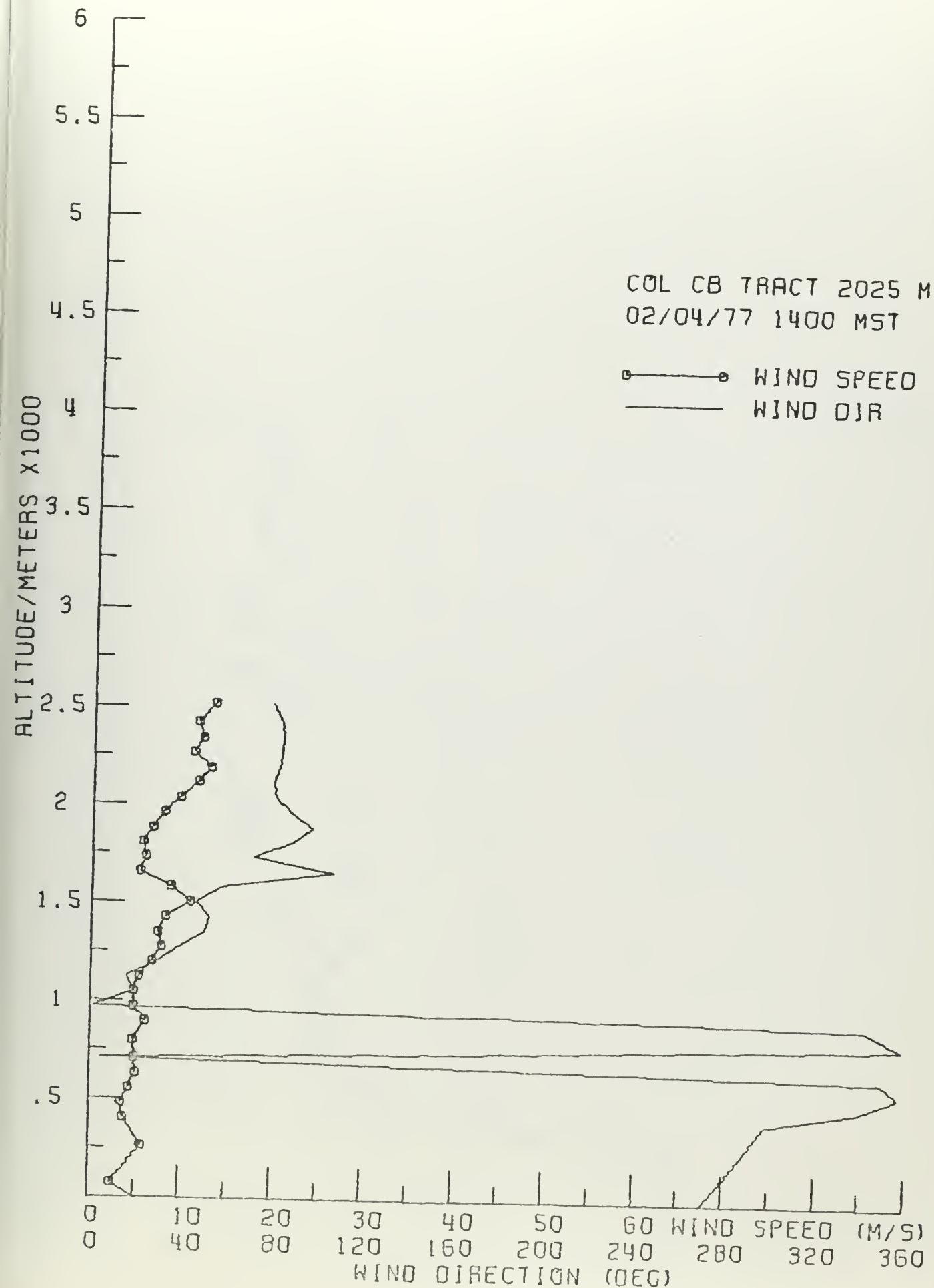
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02/04/77 0820 MST

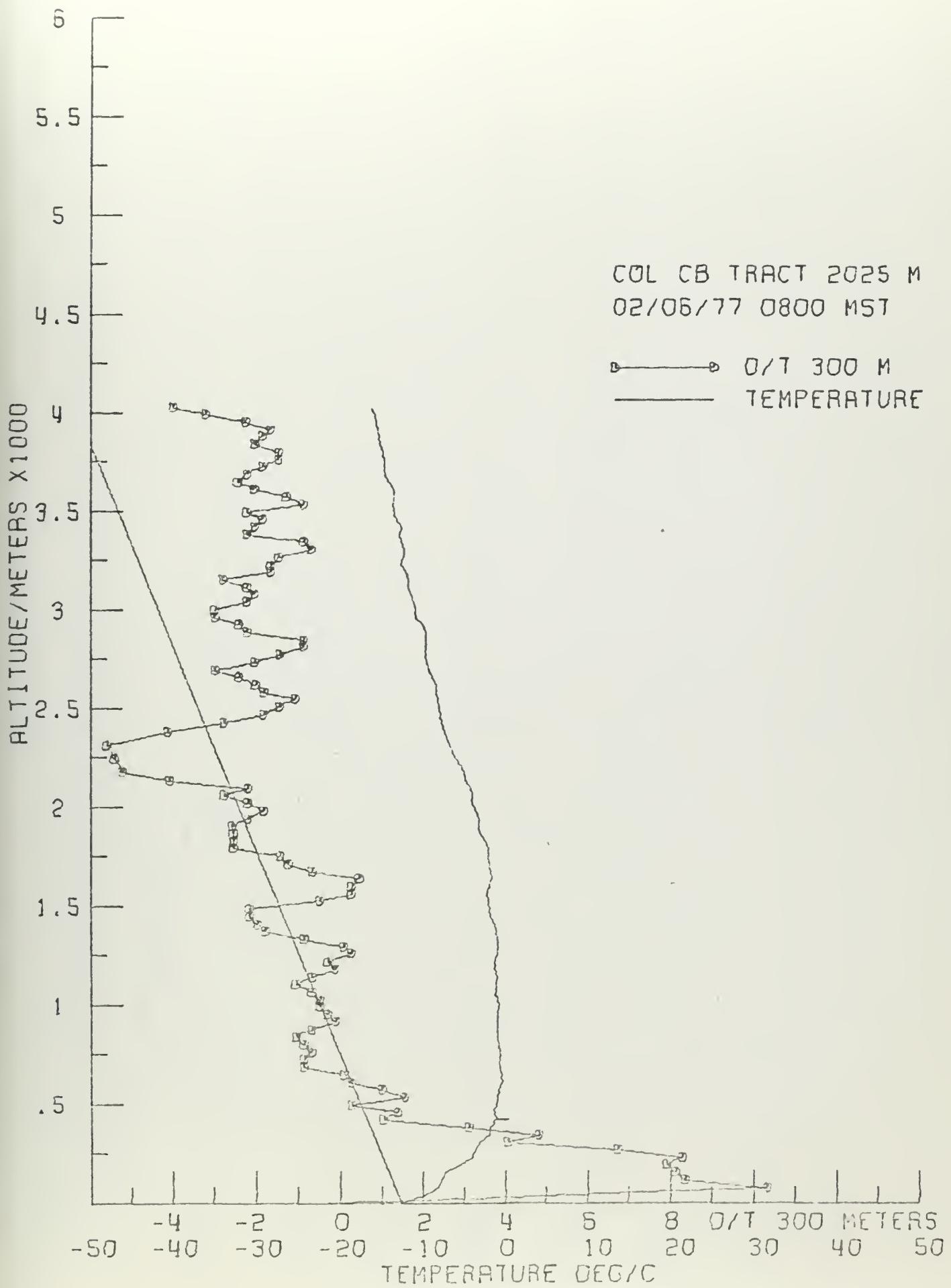




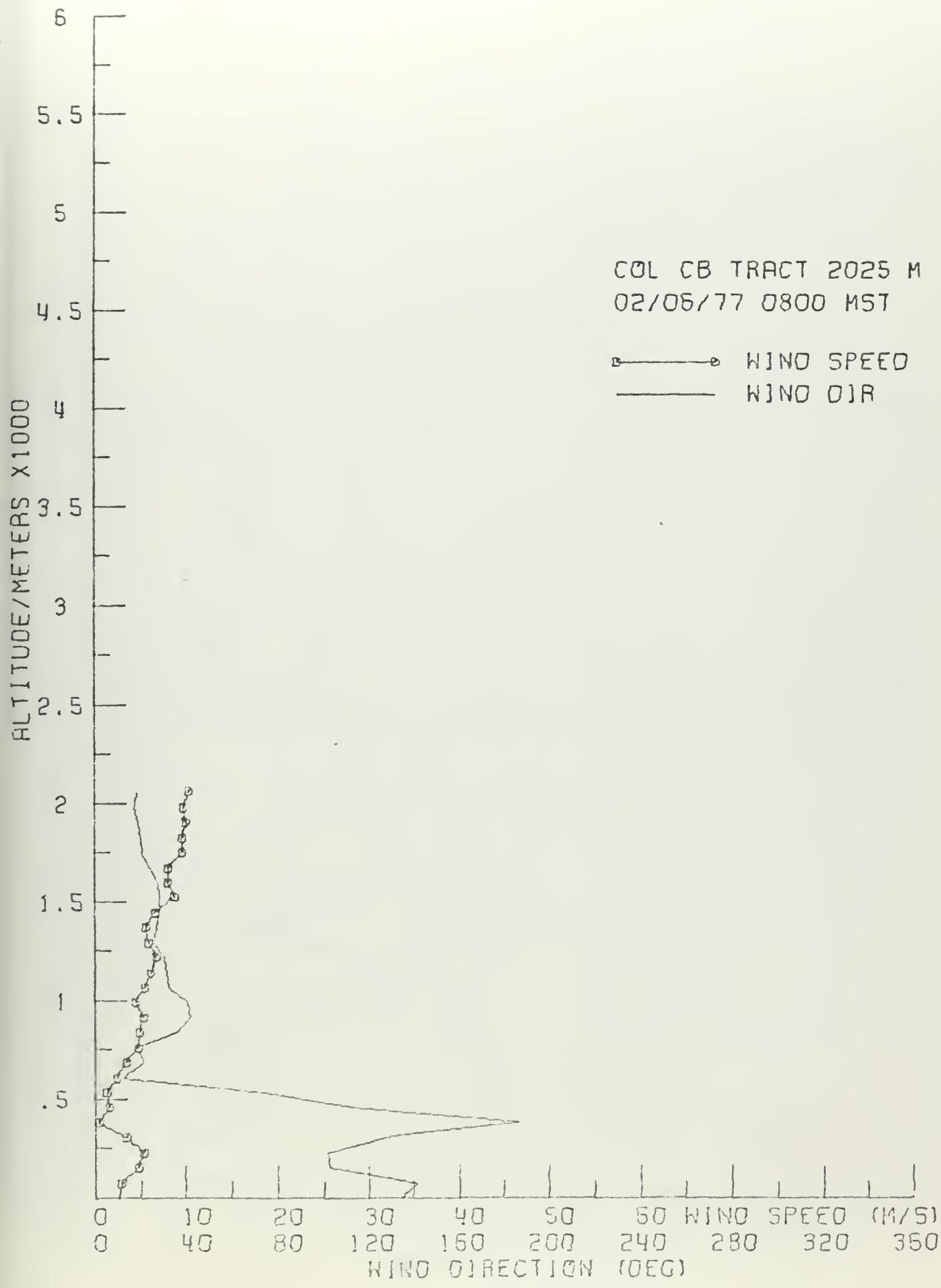


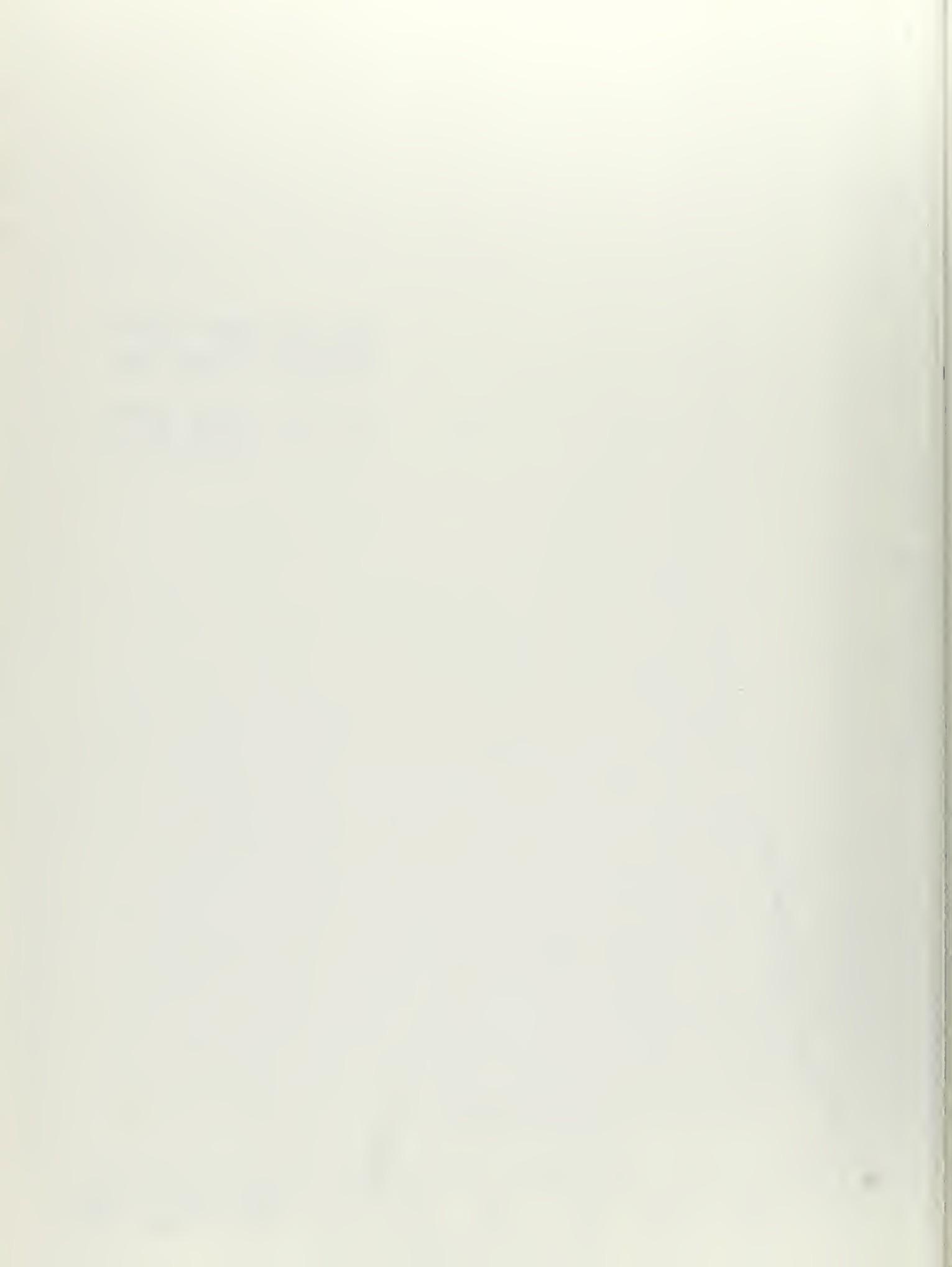


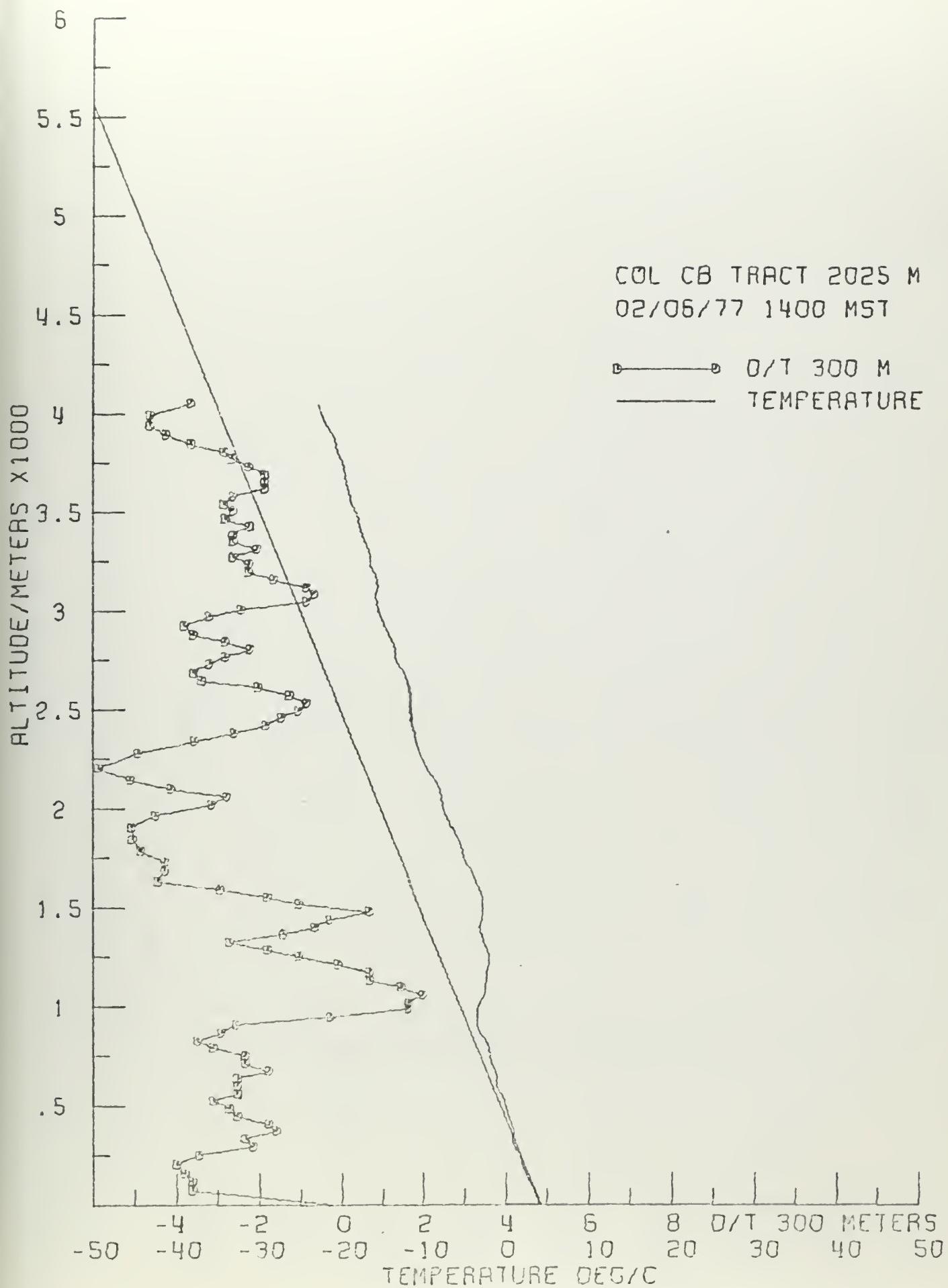


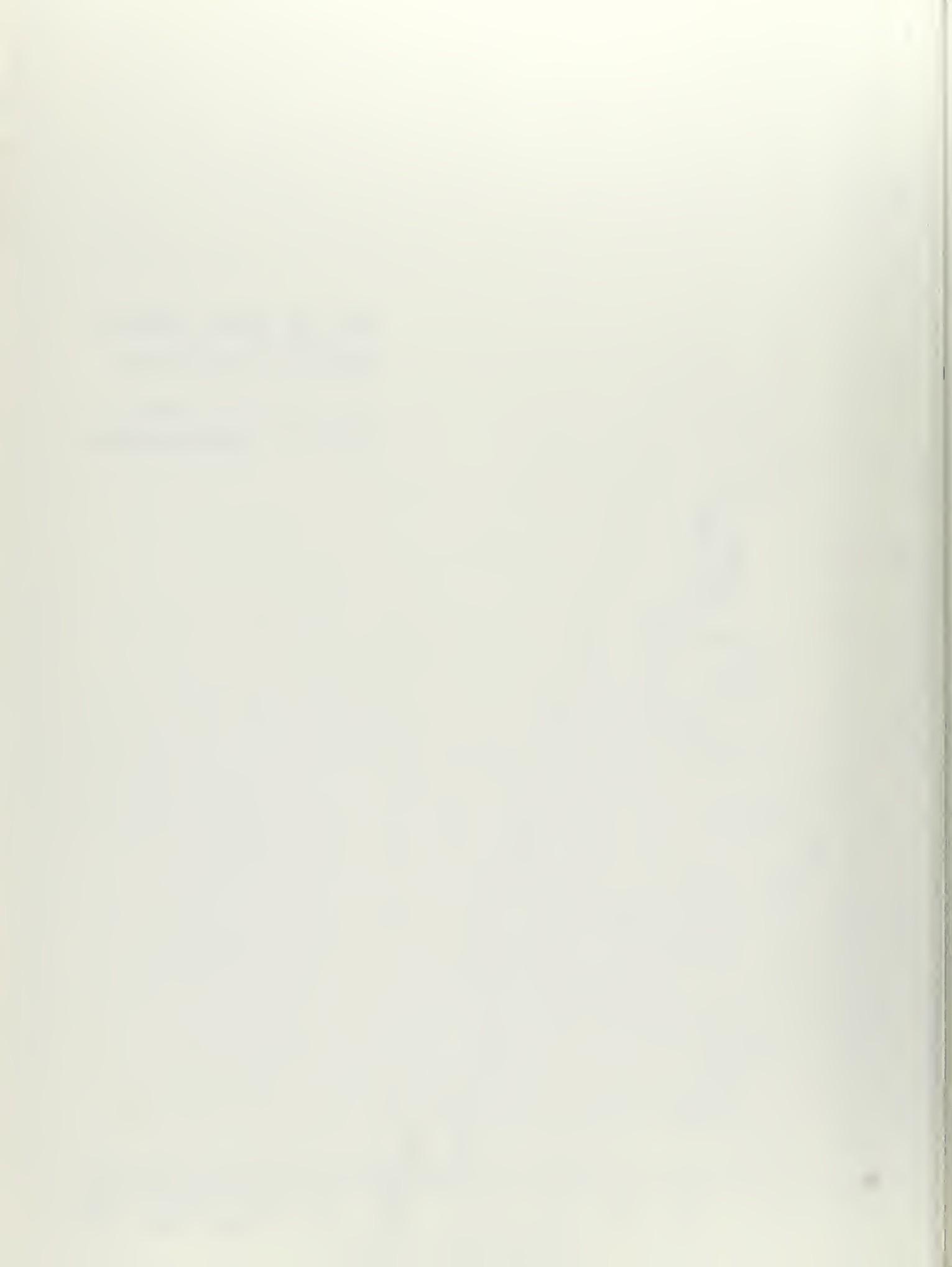


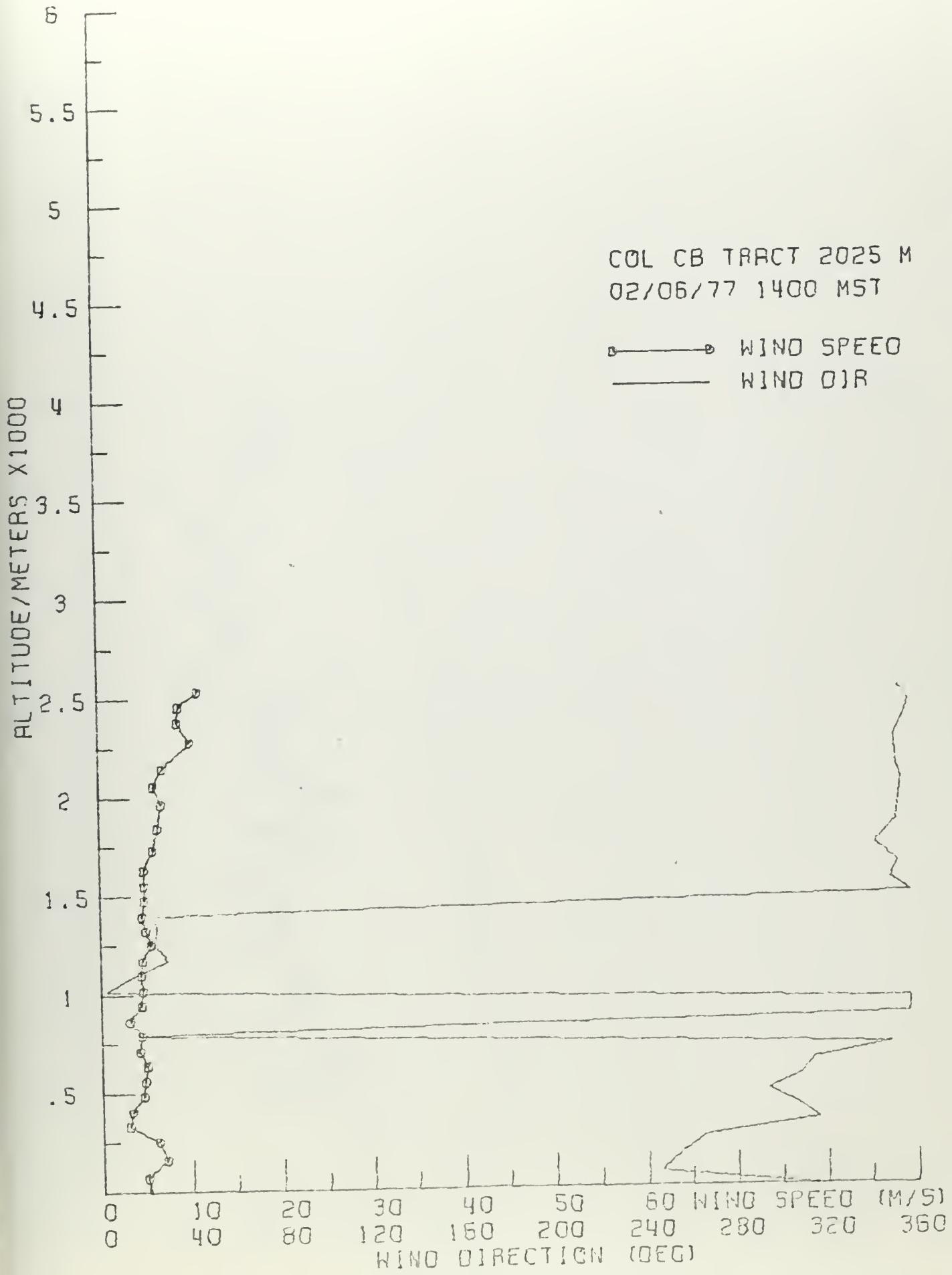


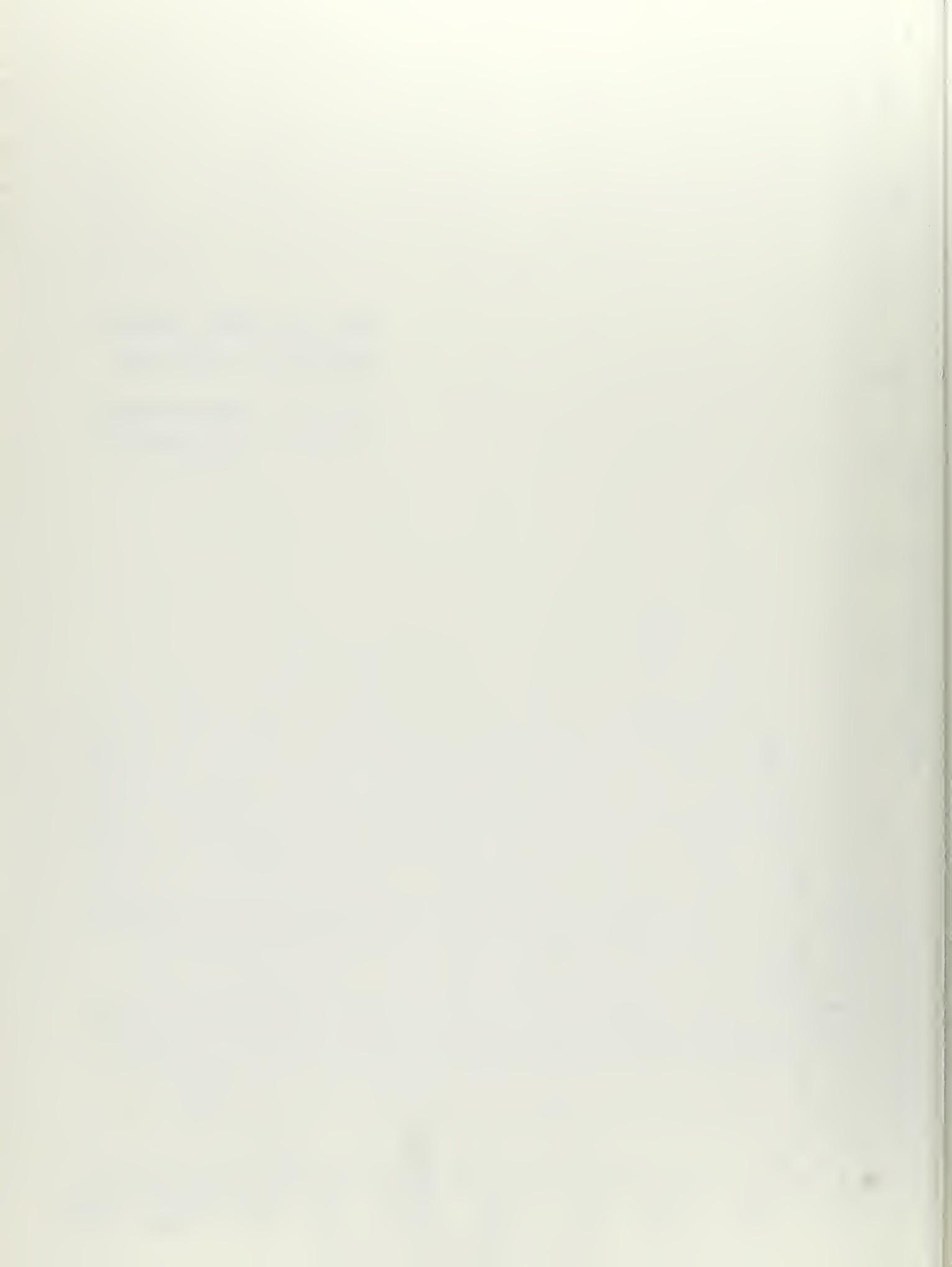


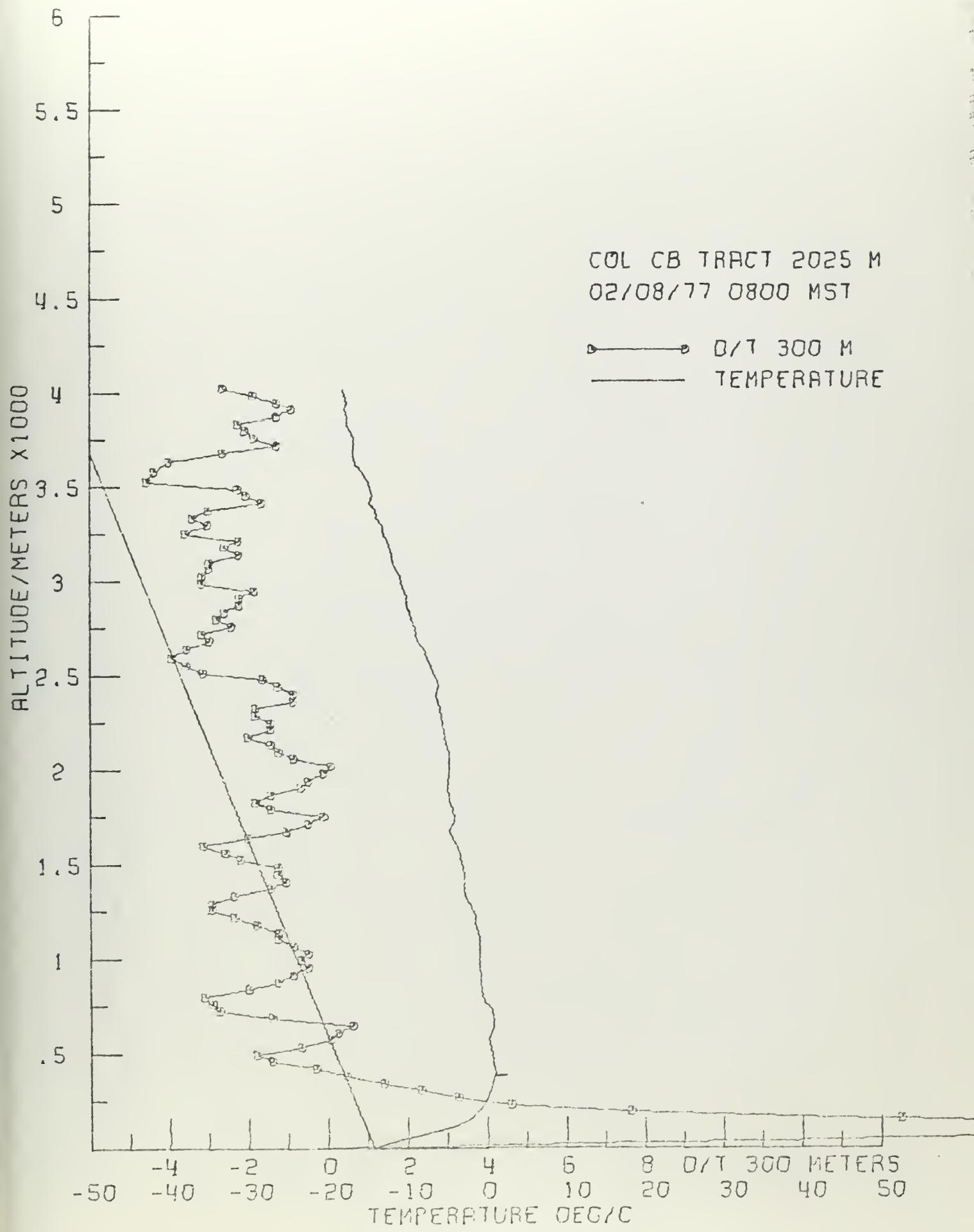


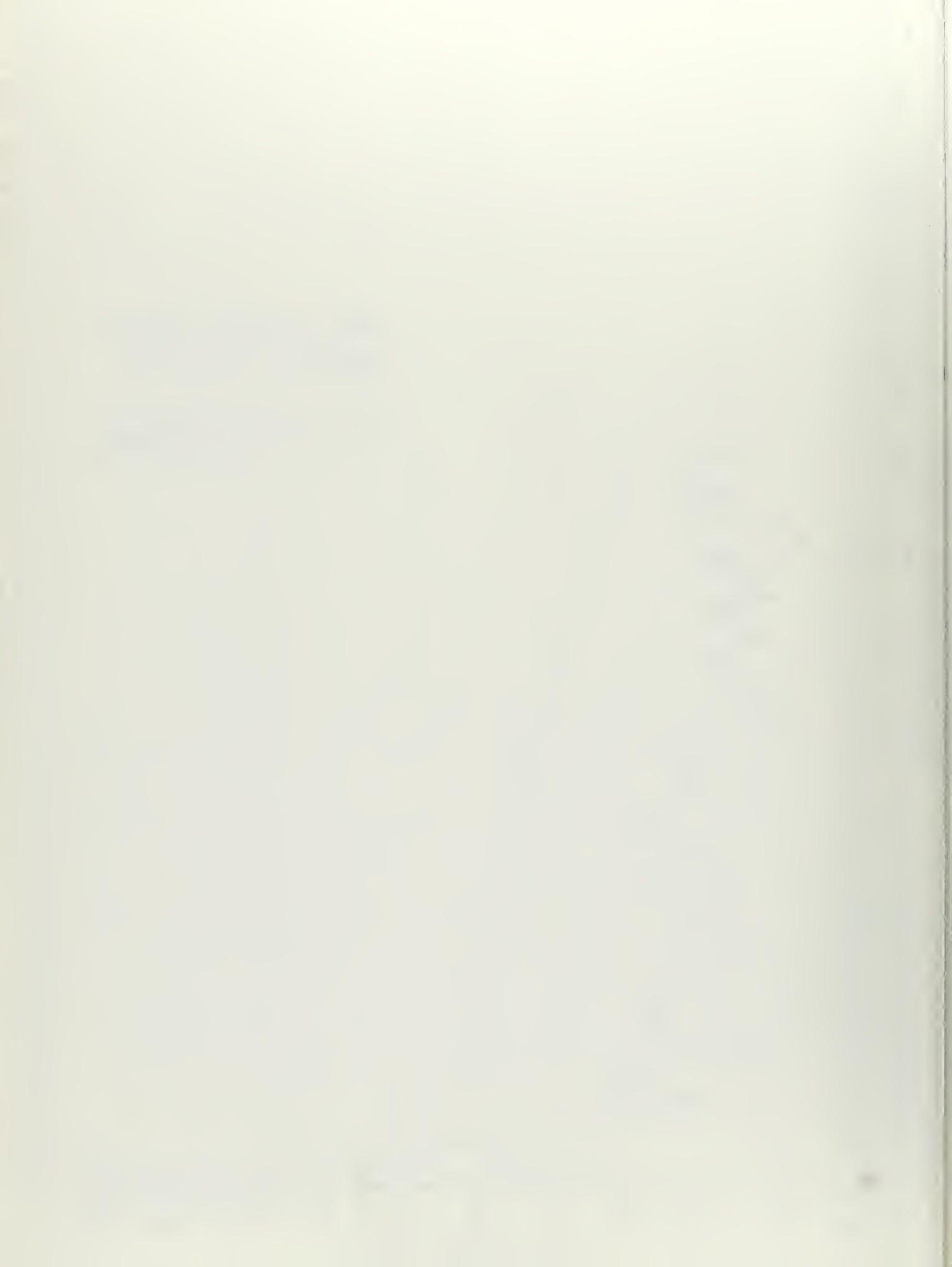


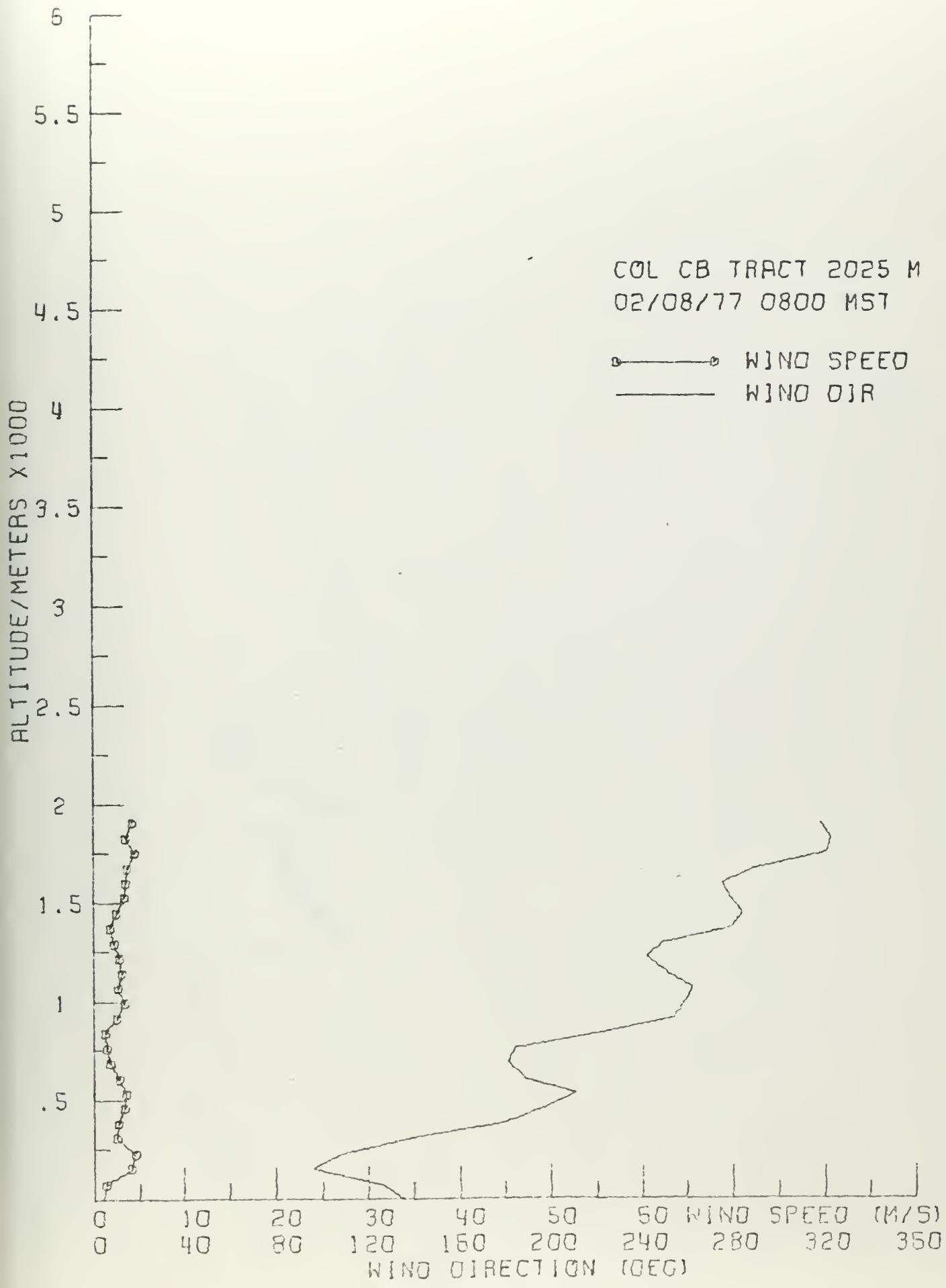


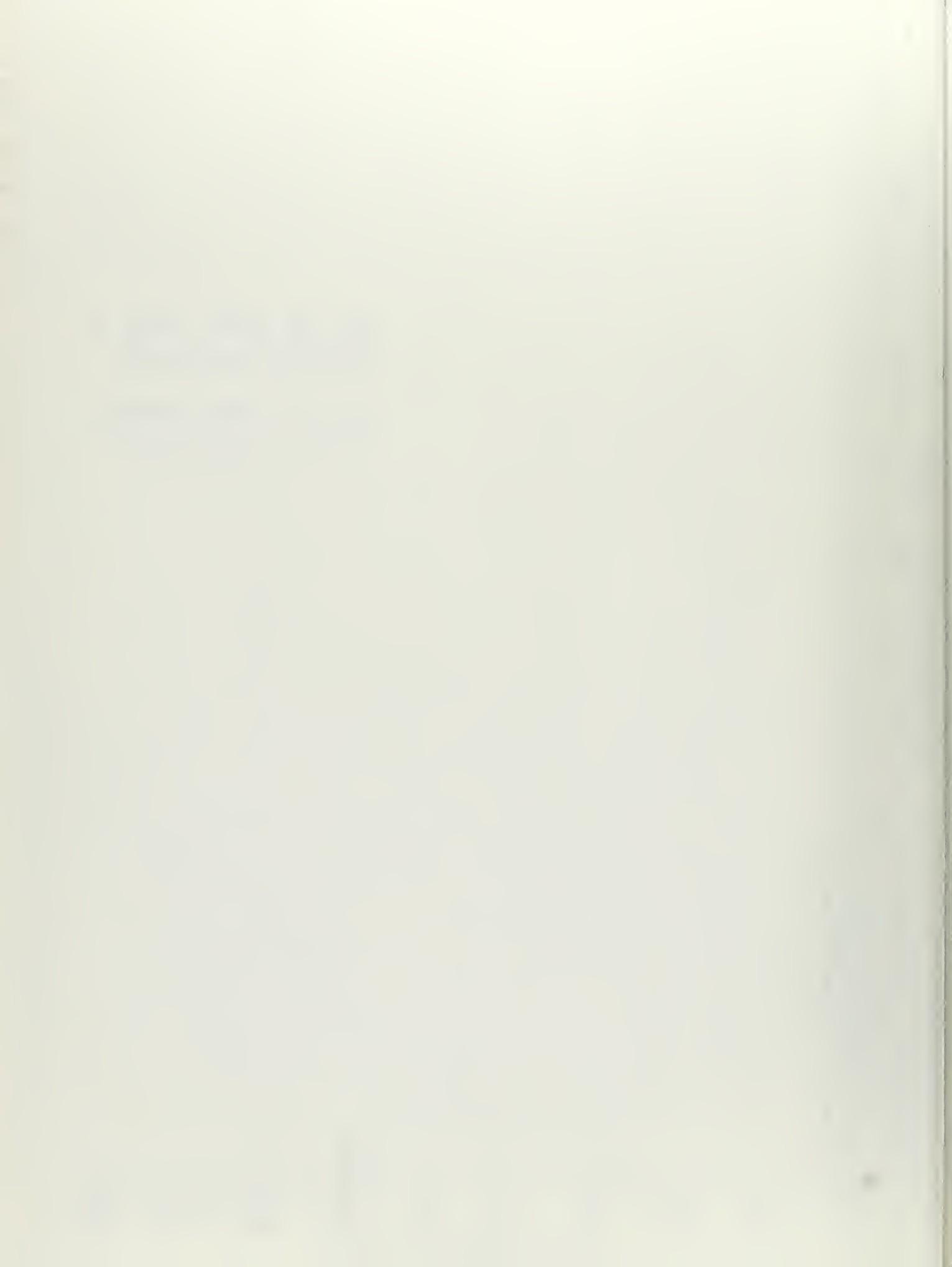


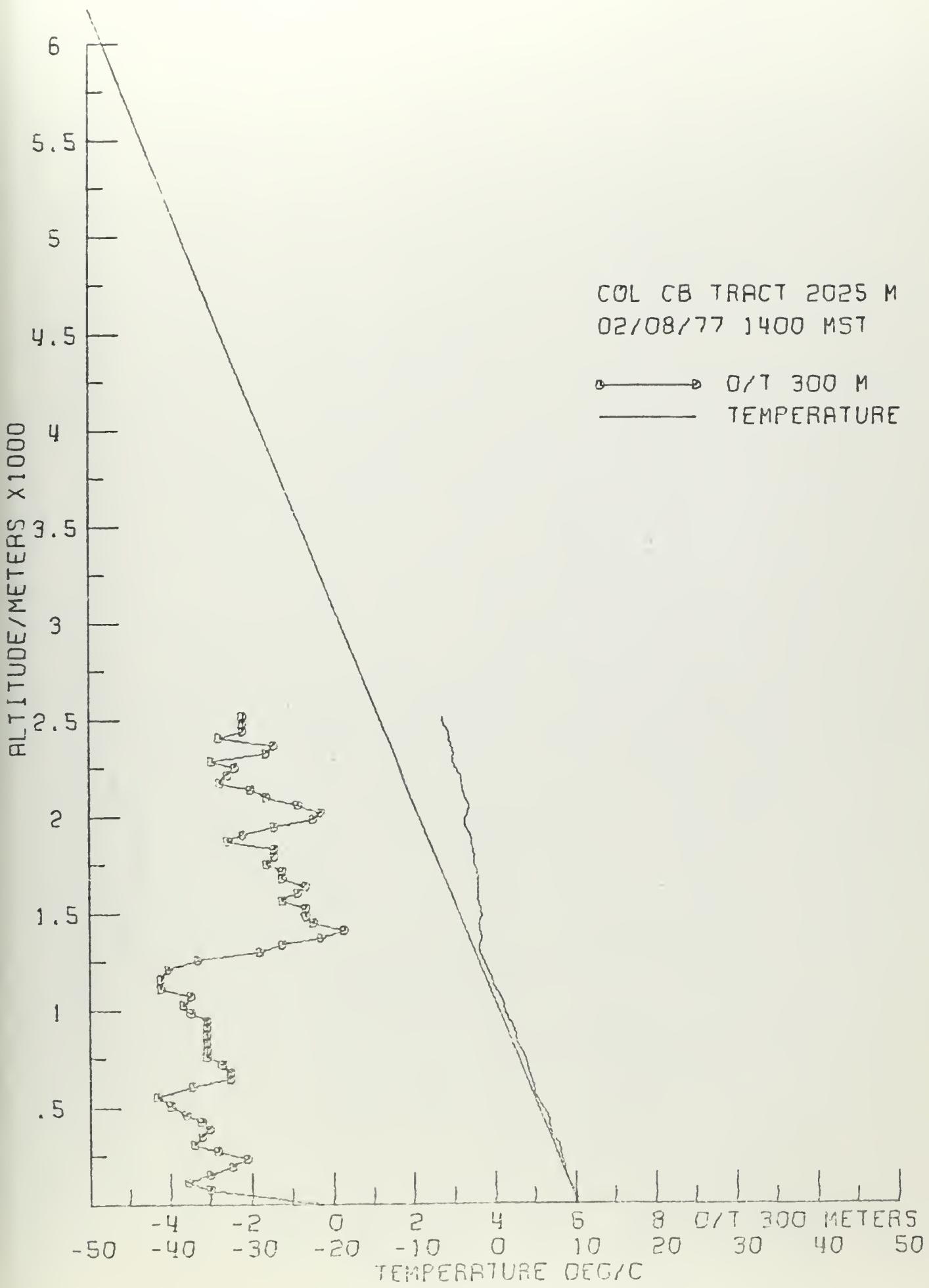


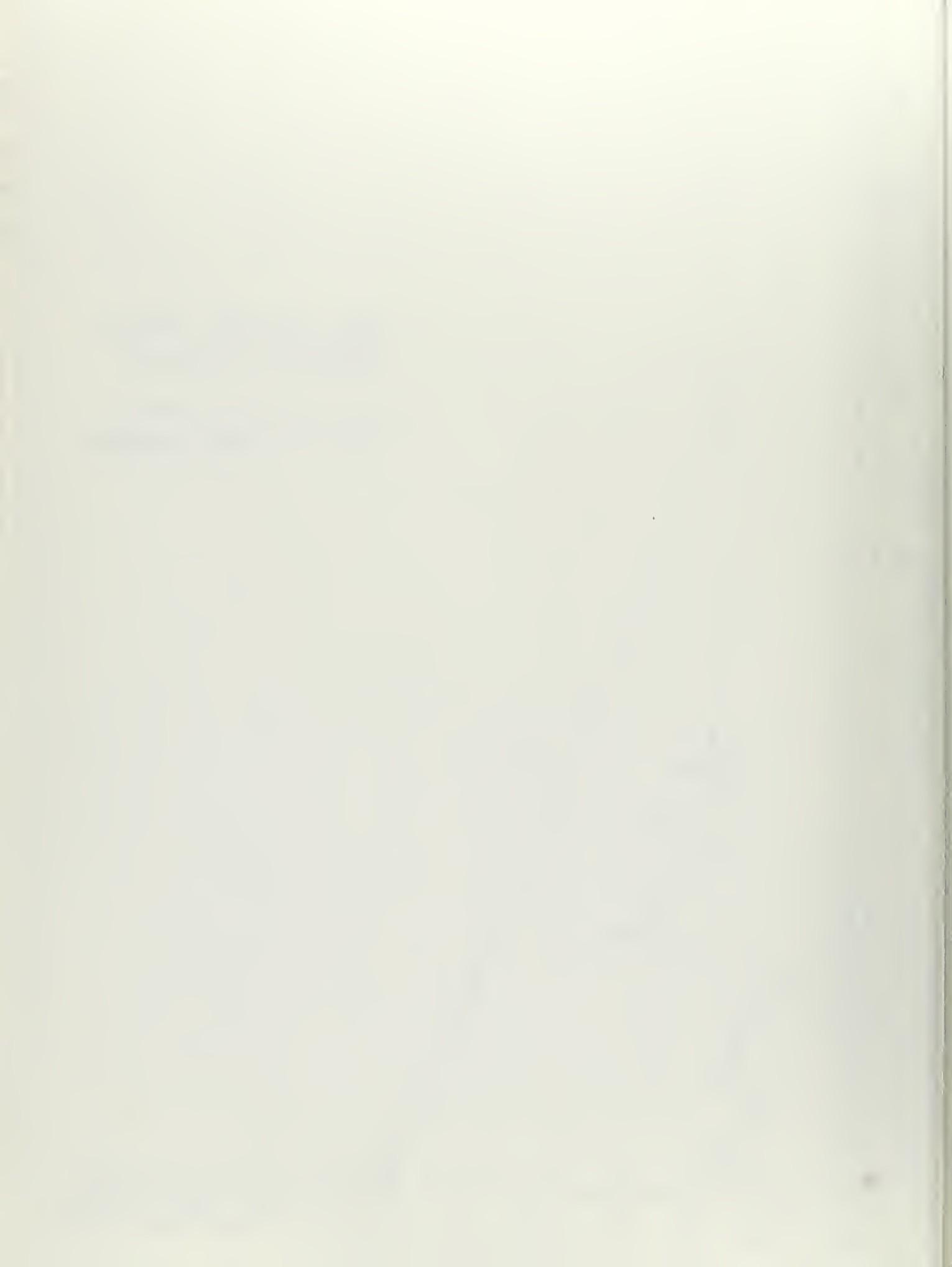


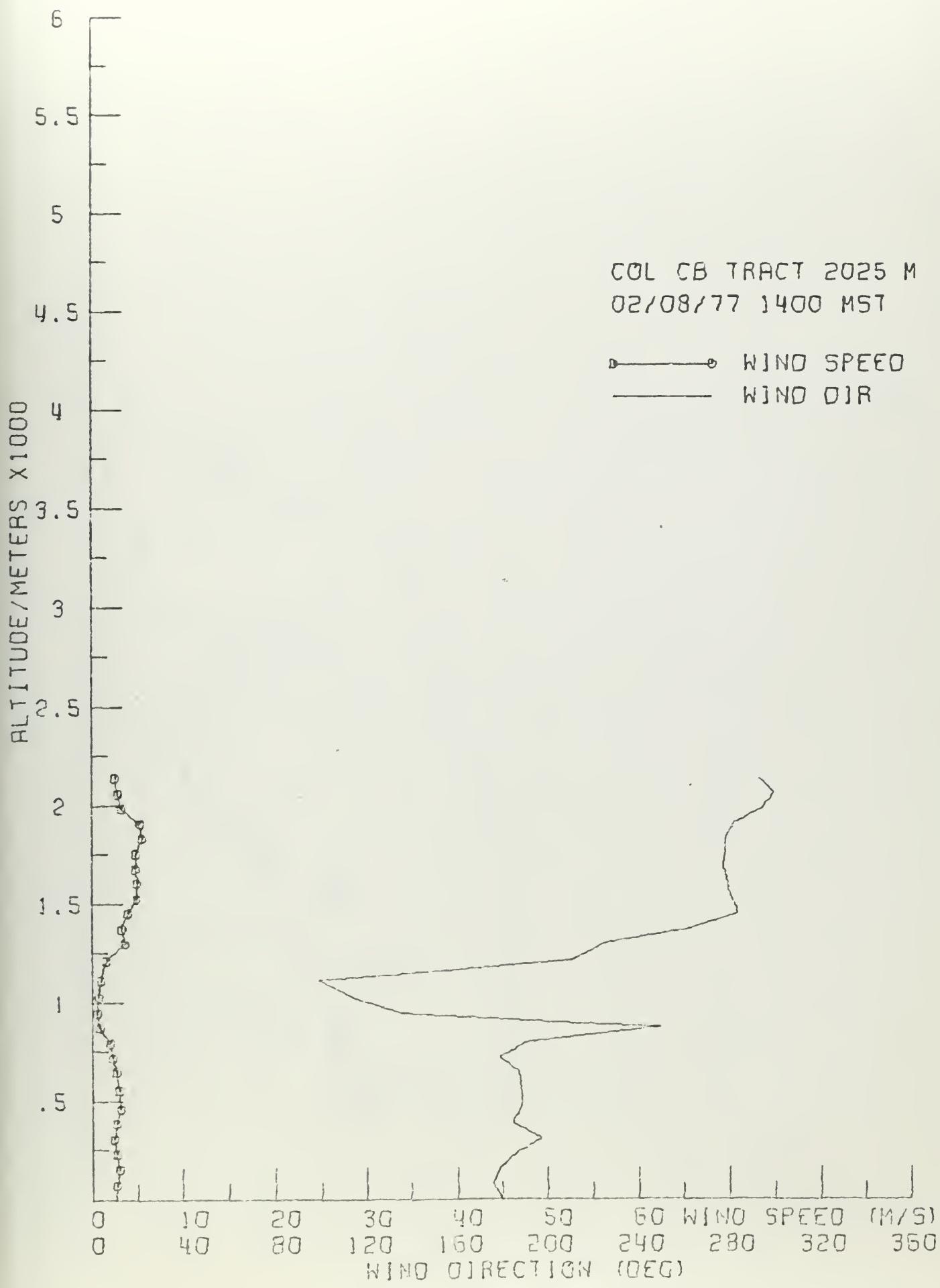




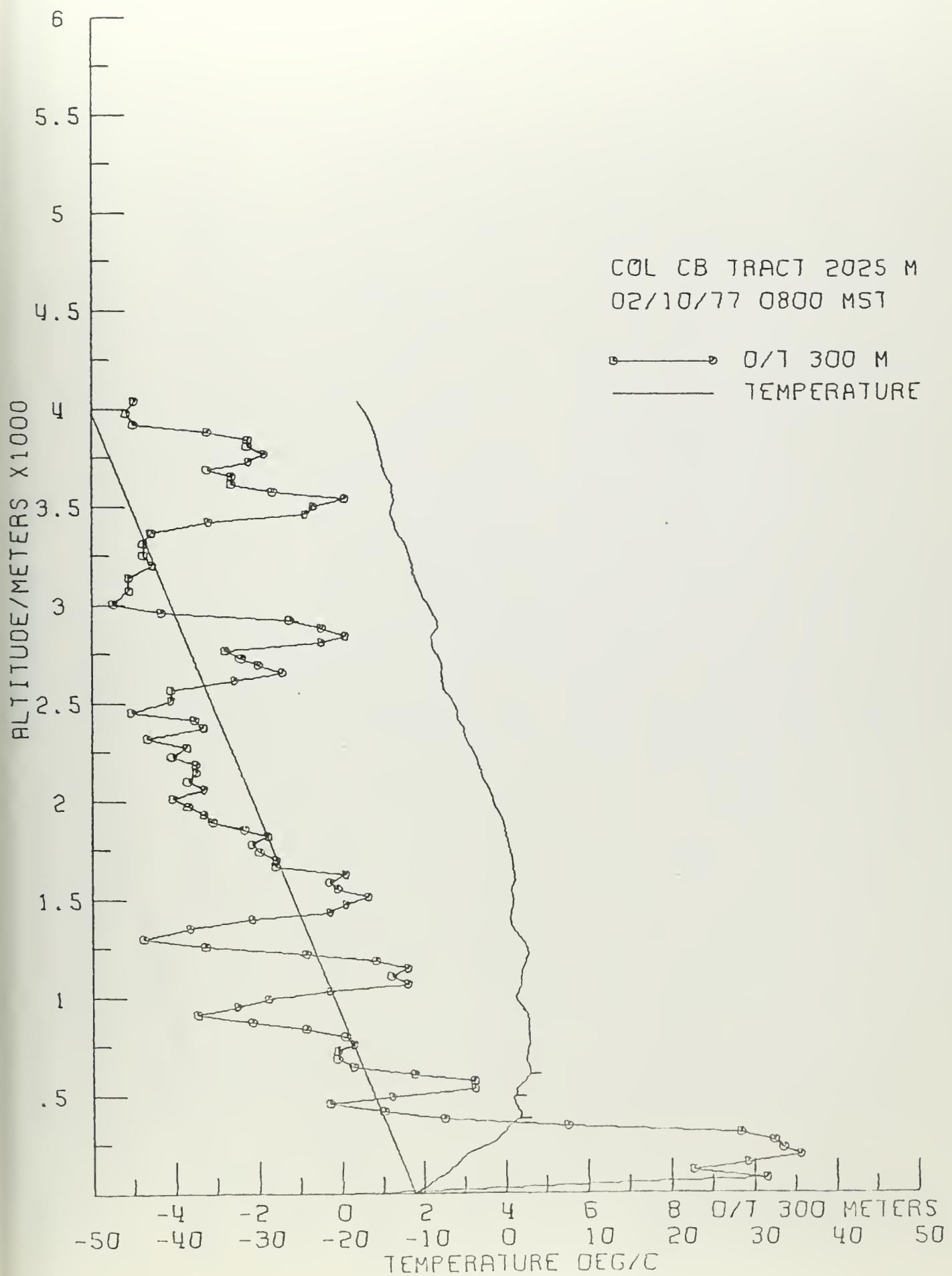


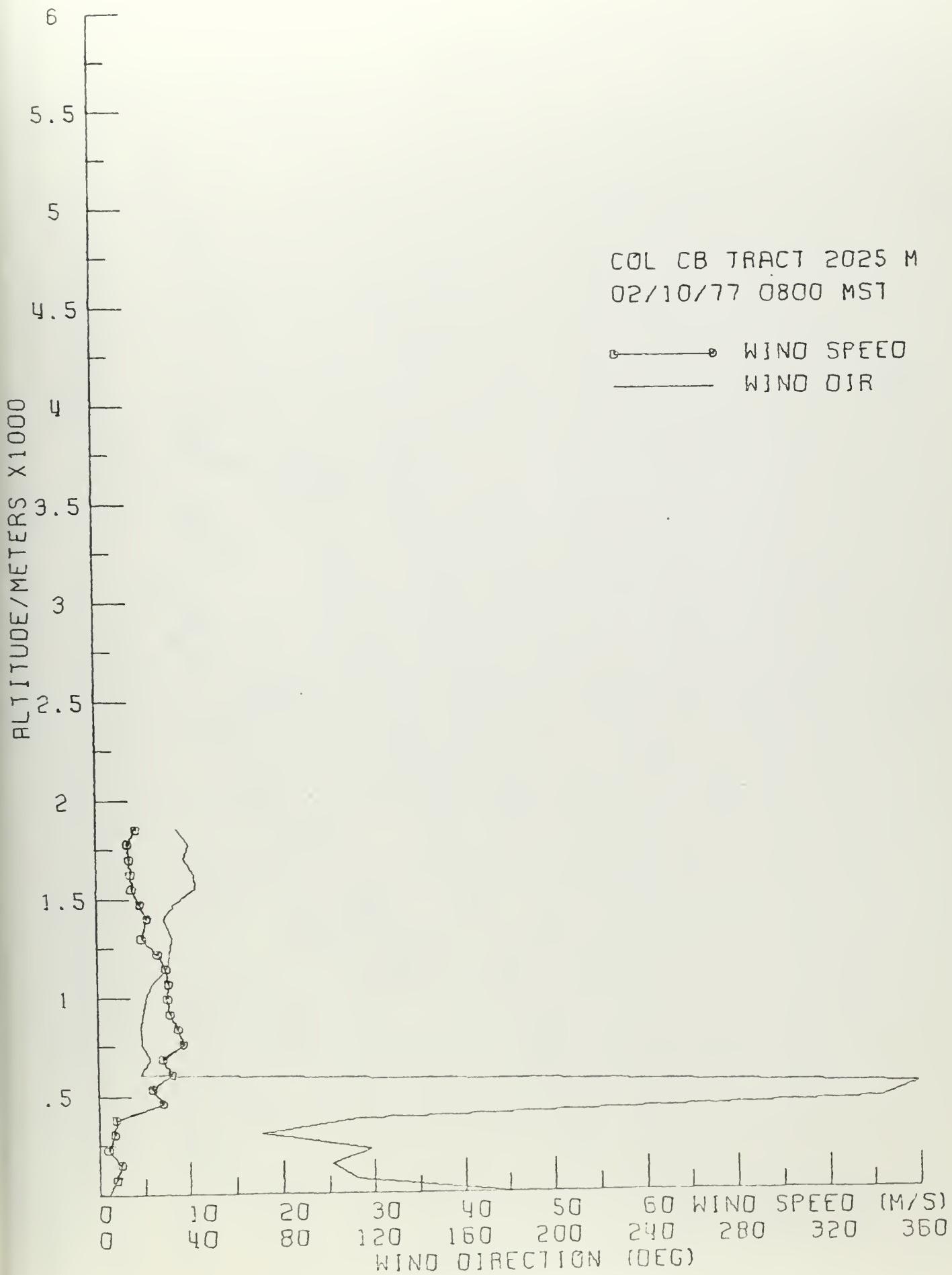




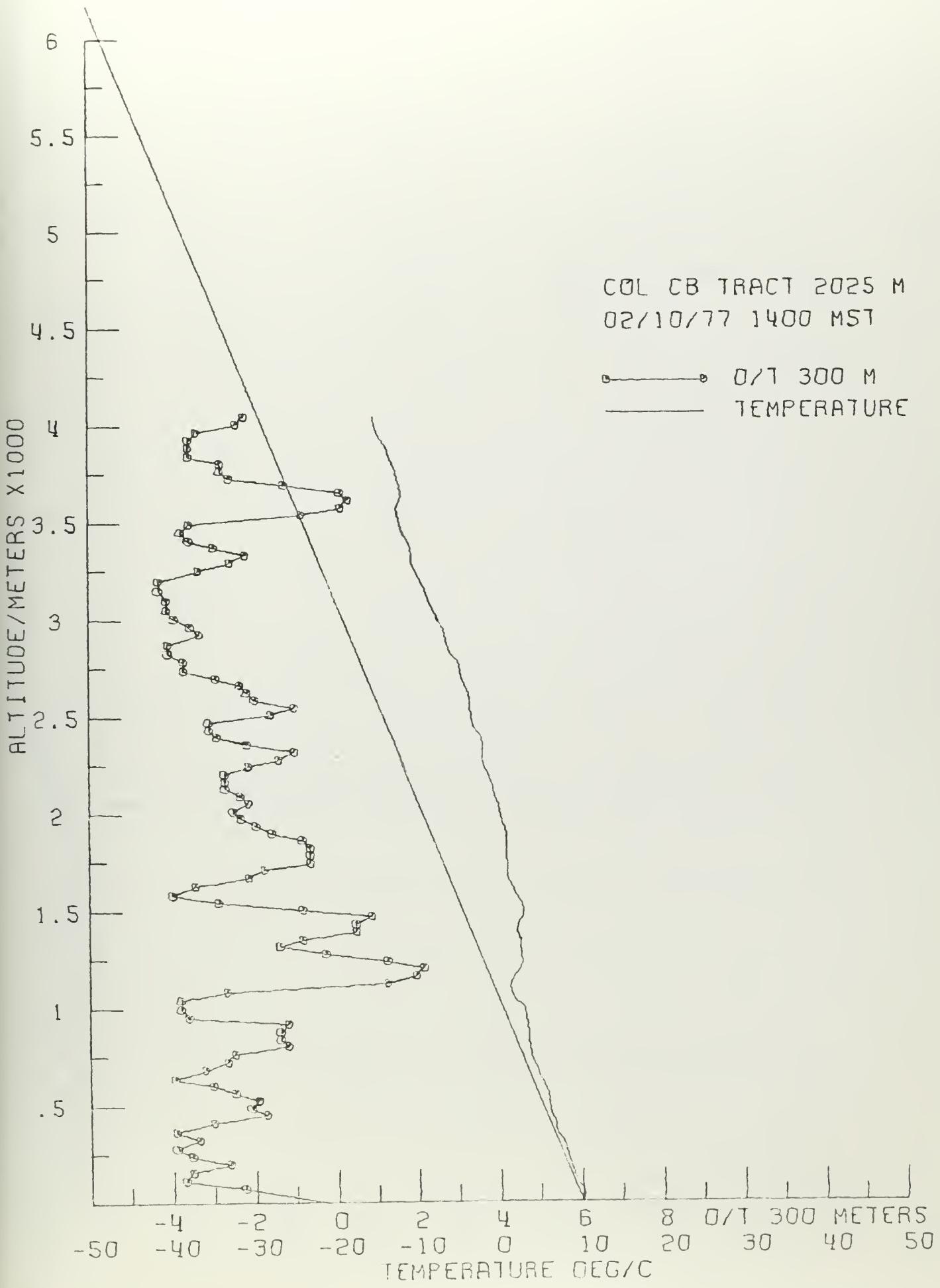




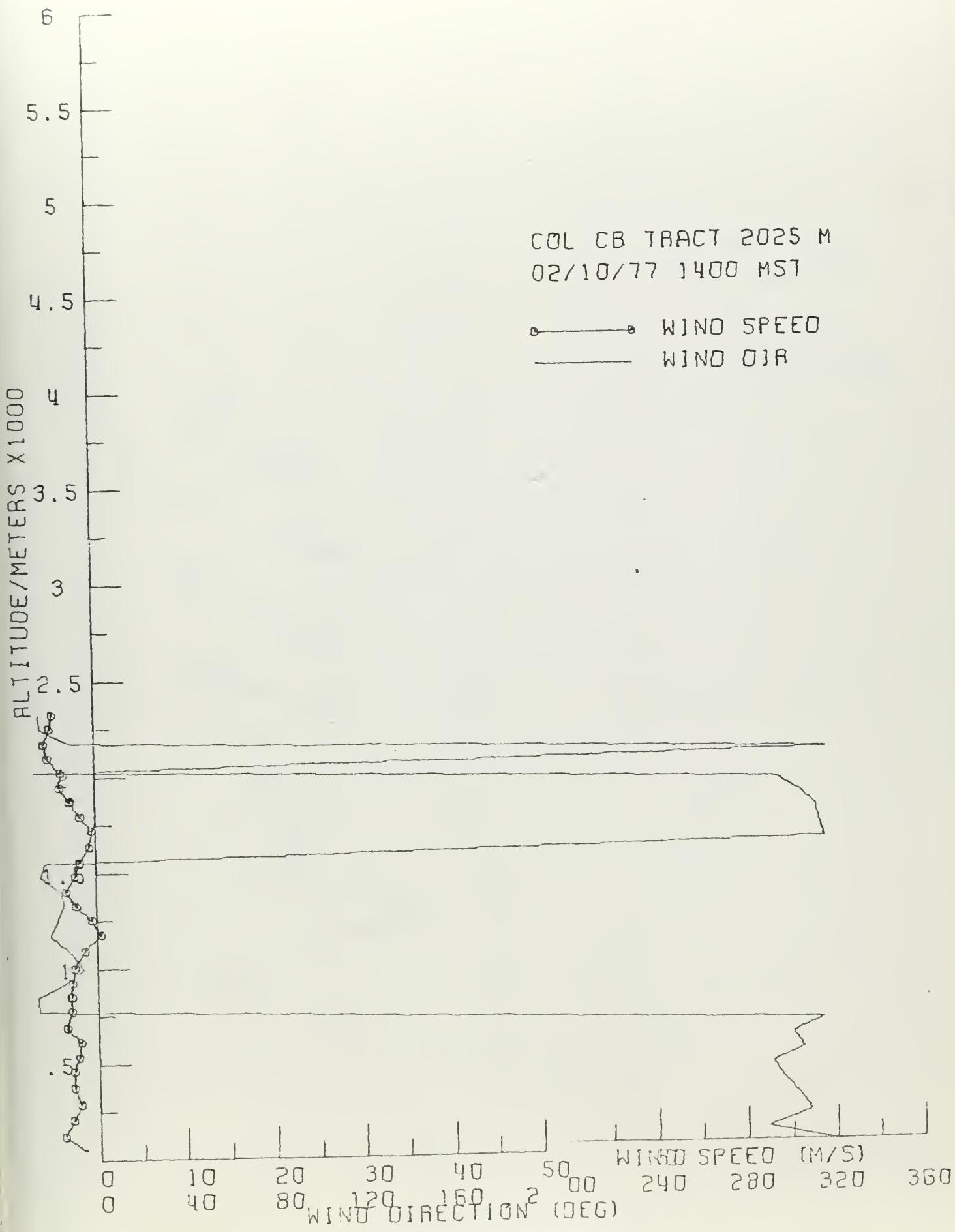




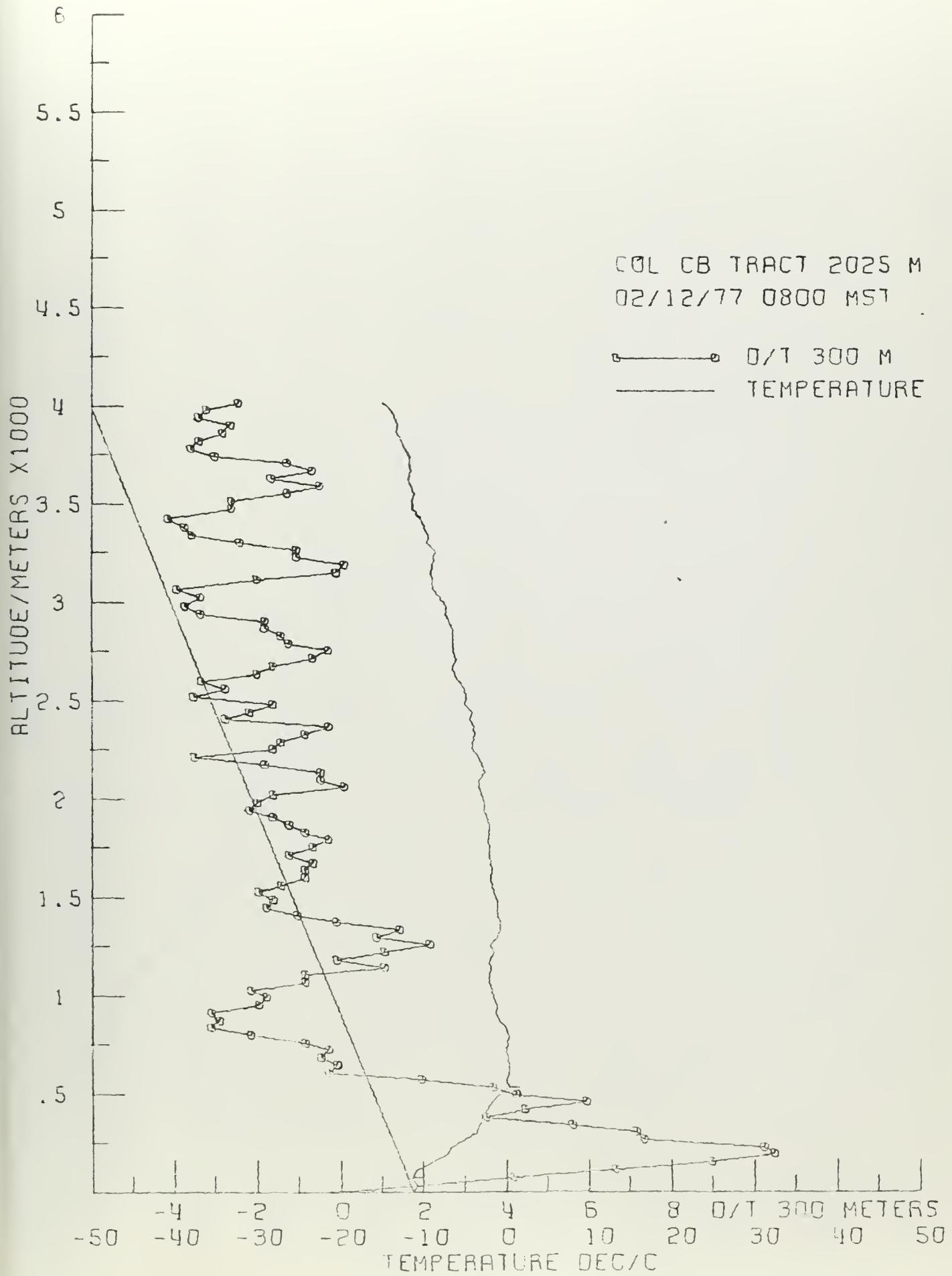


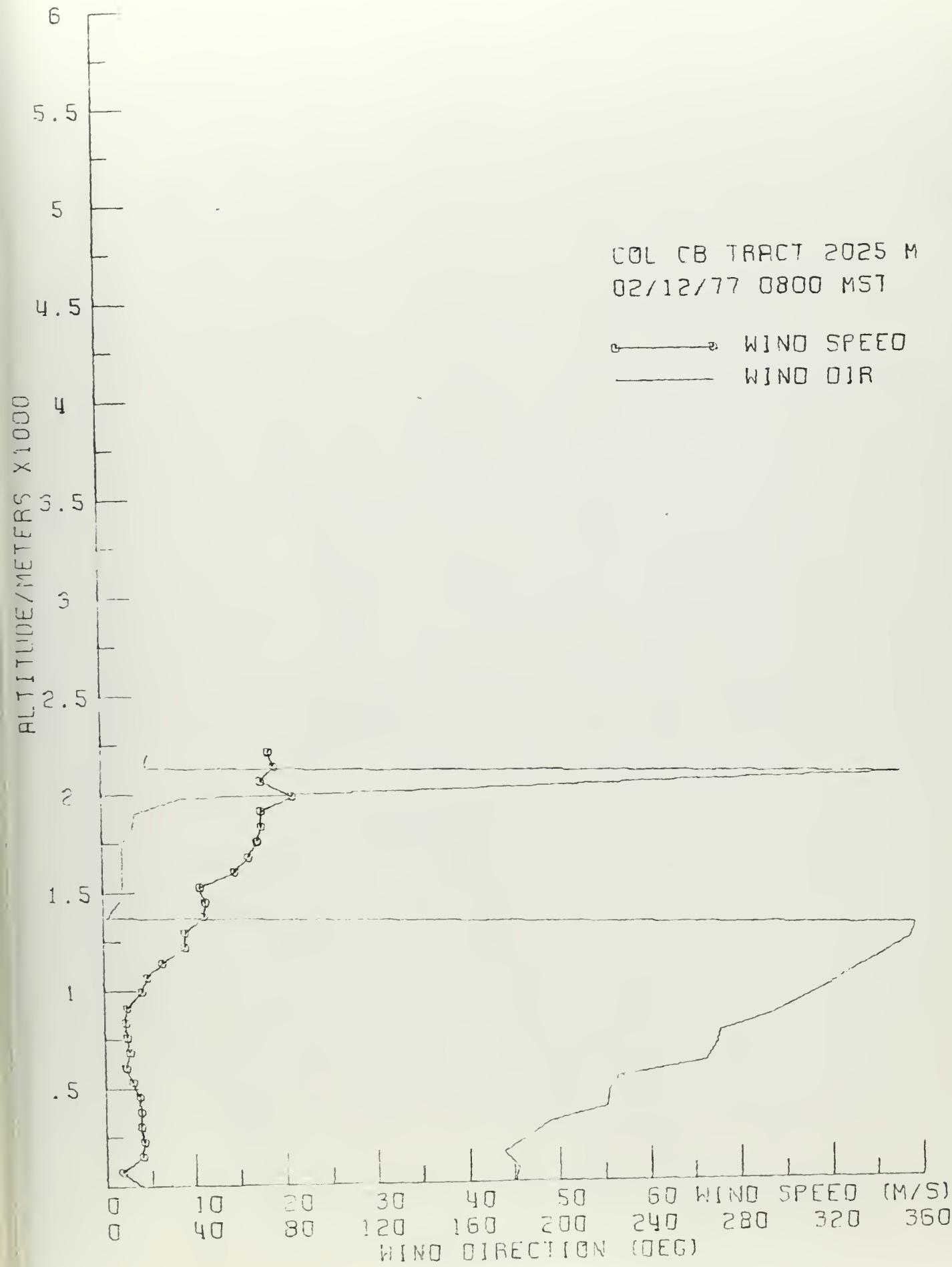


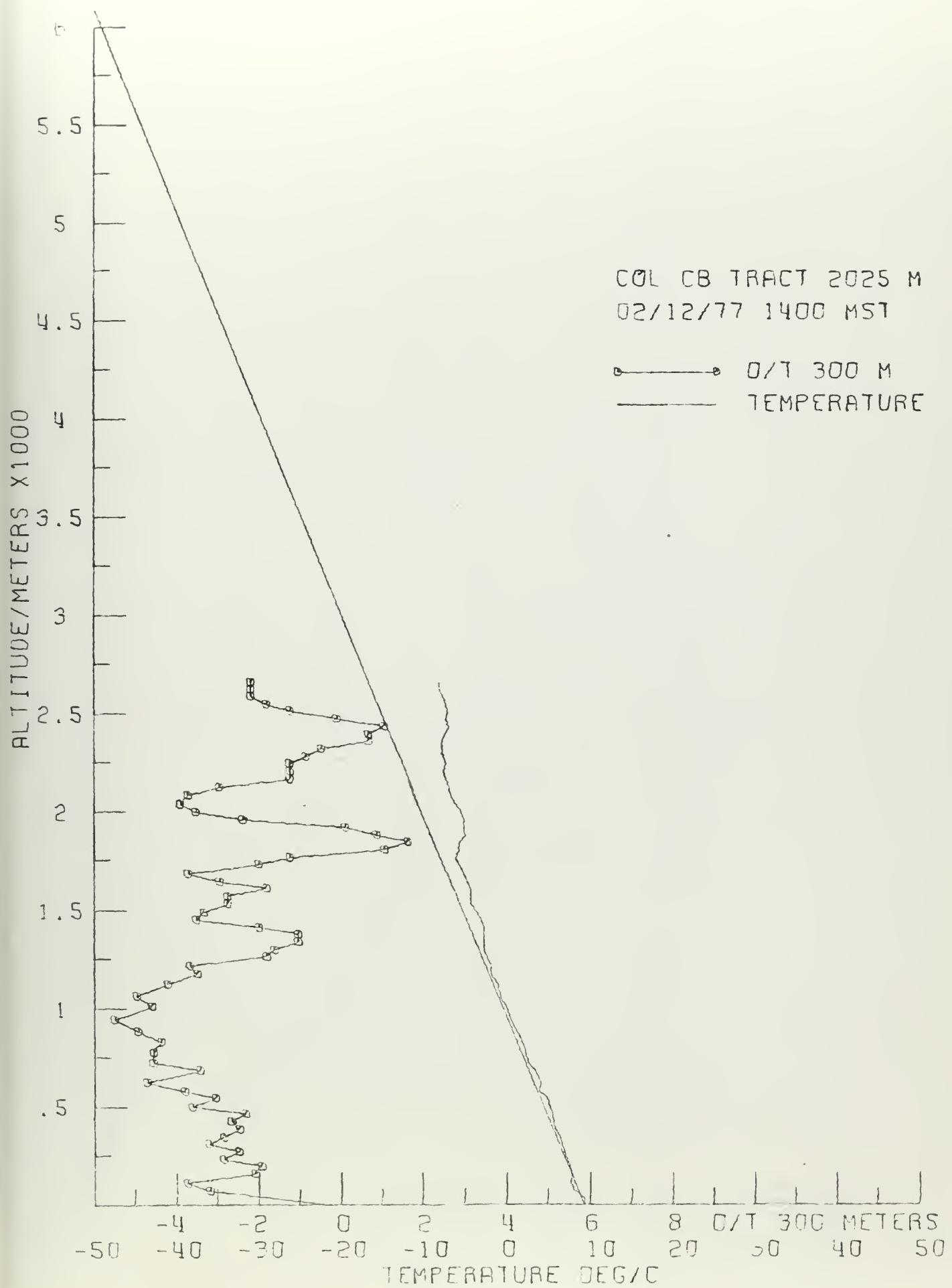


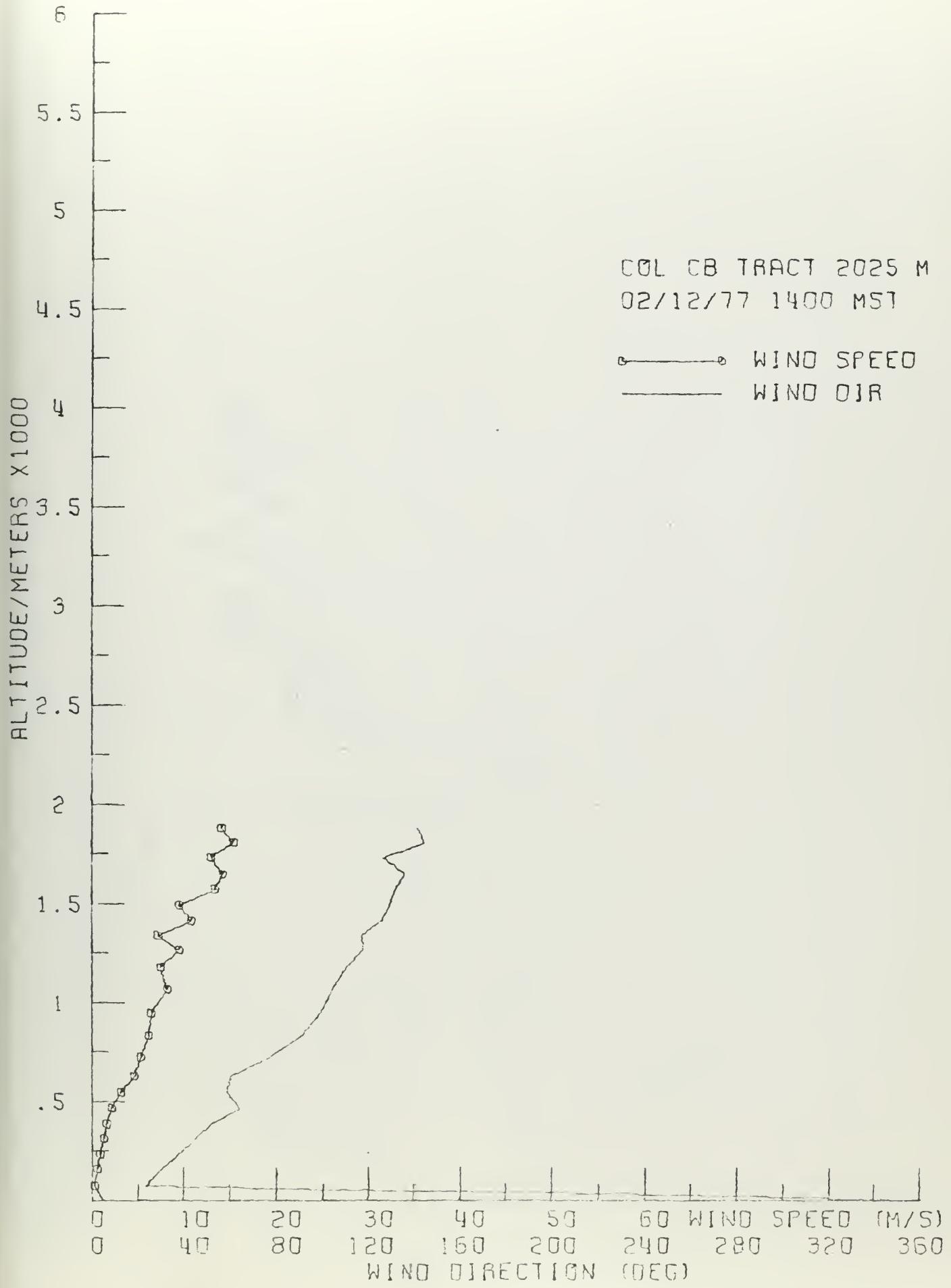


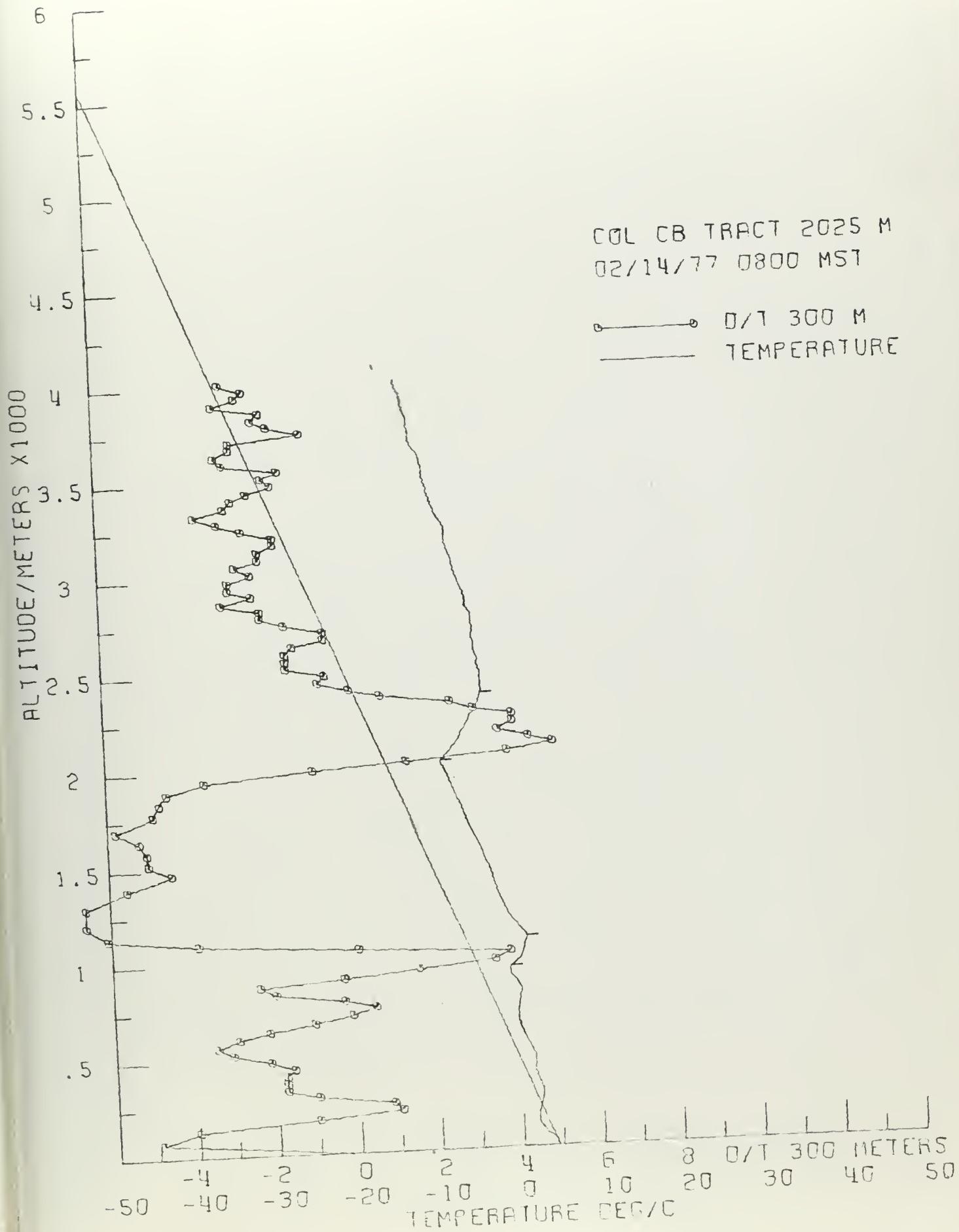


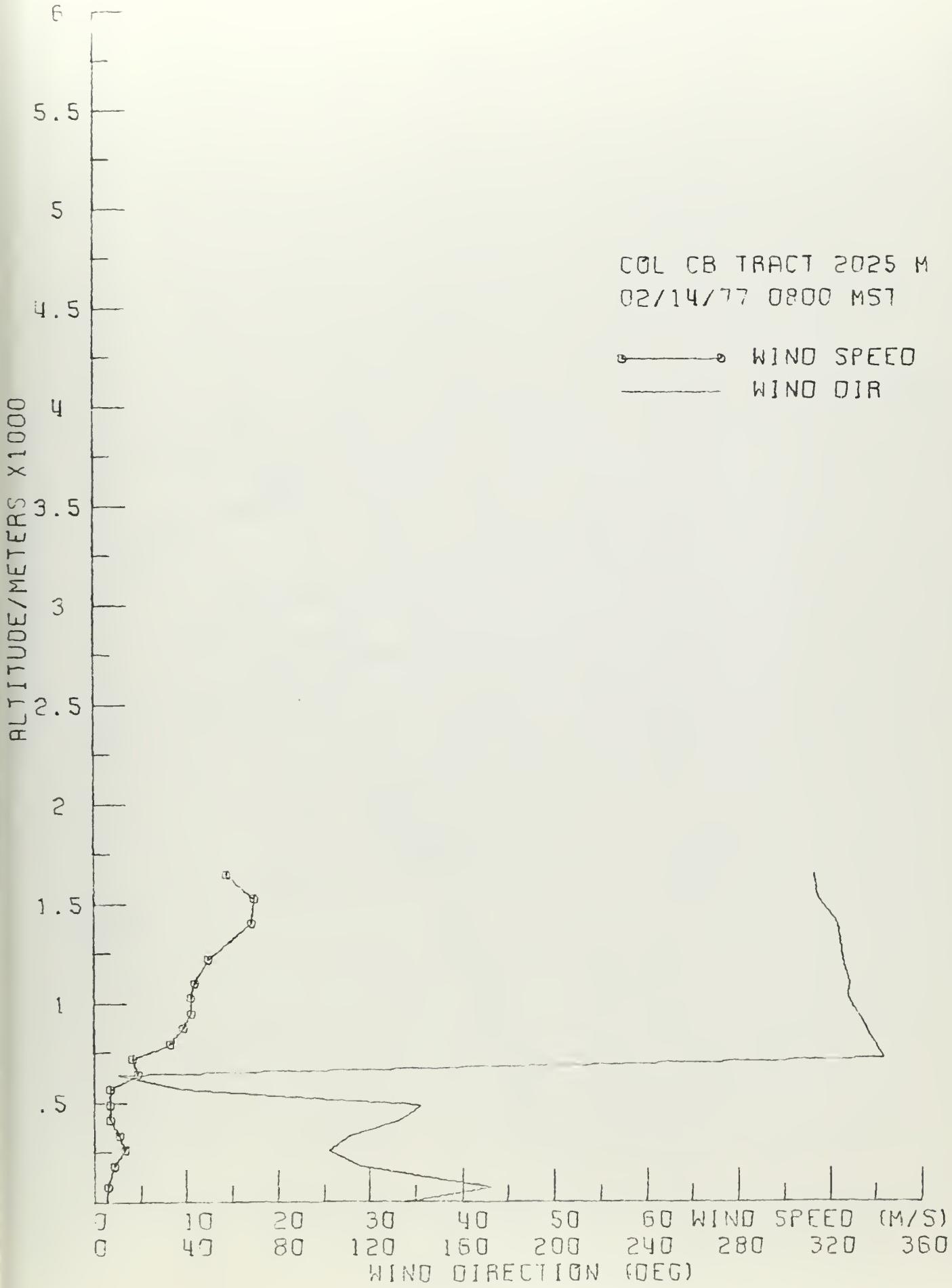


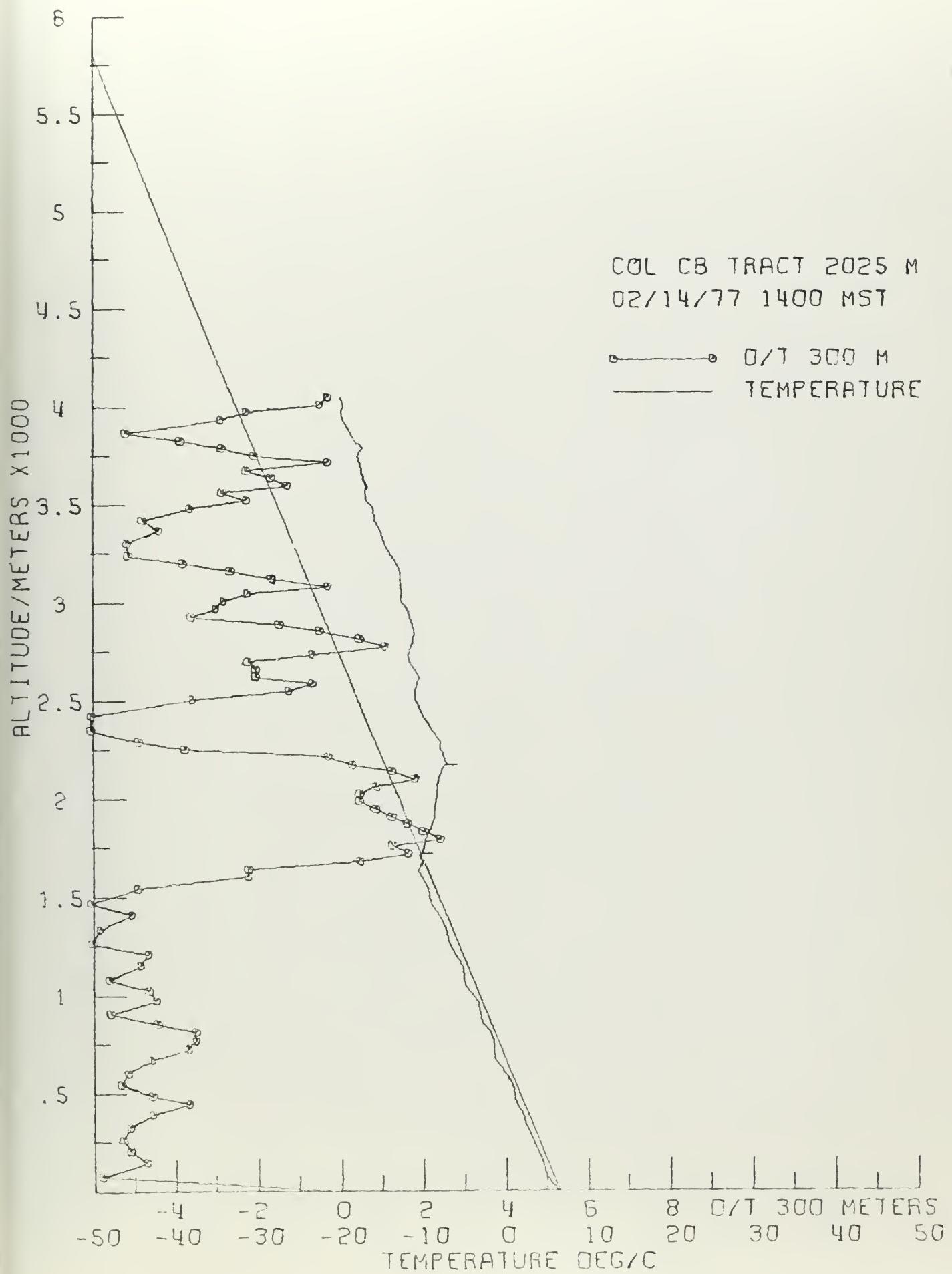


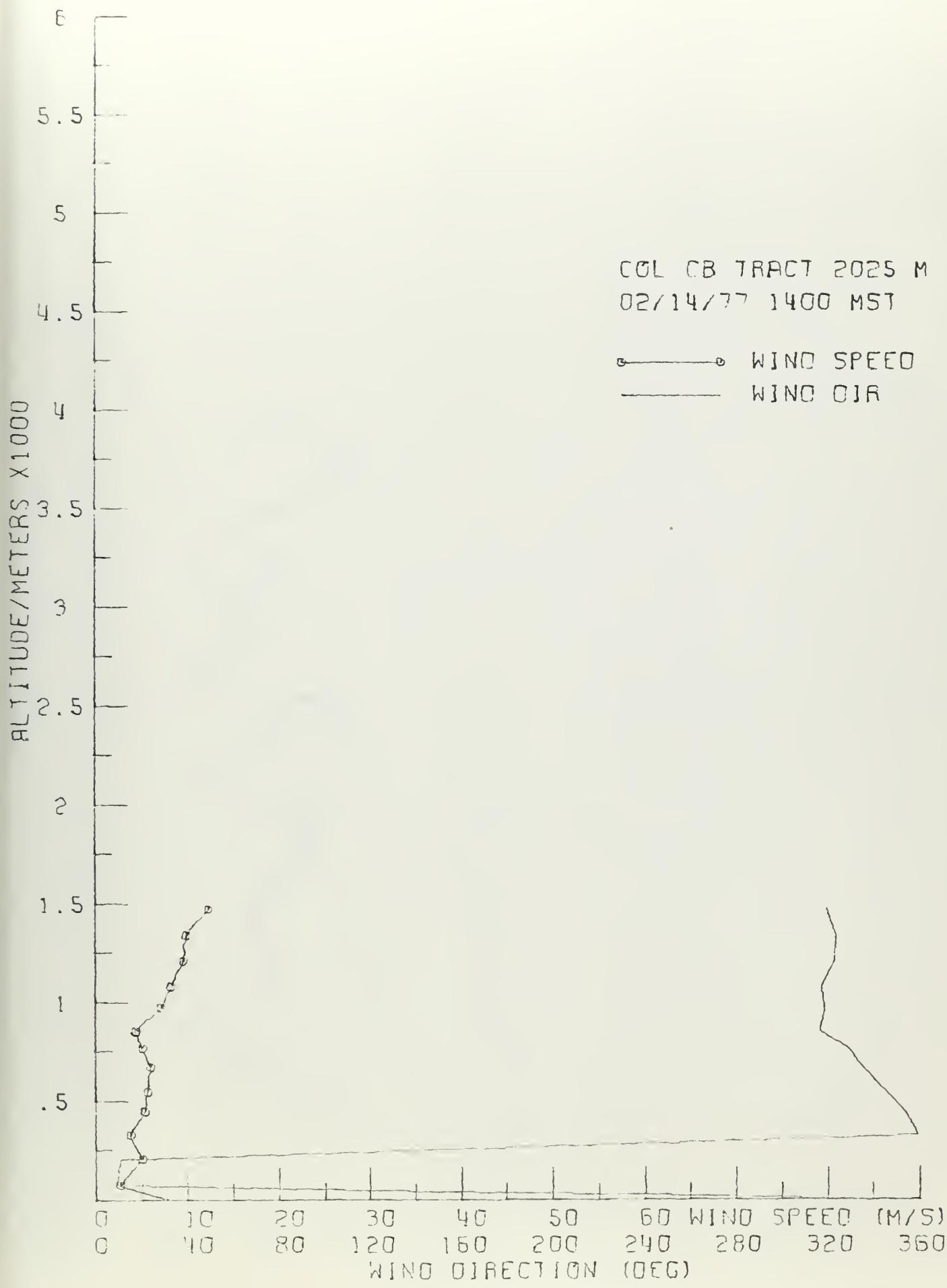


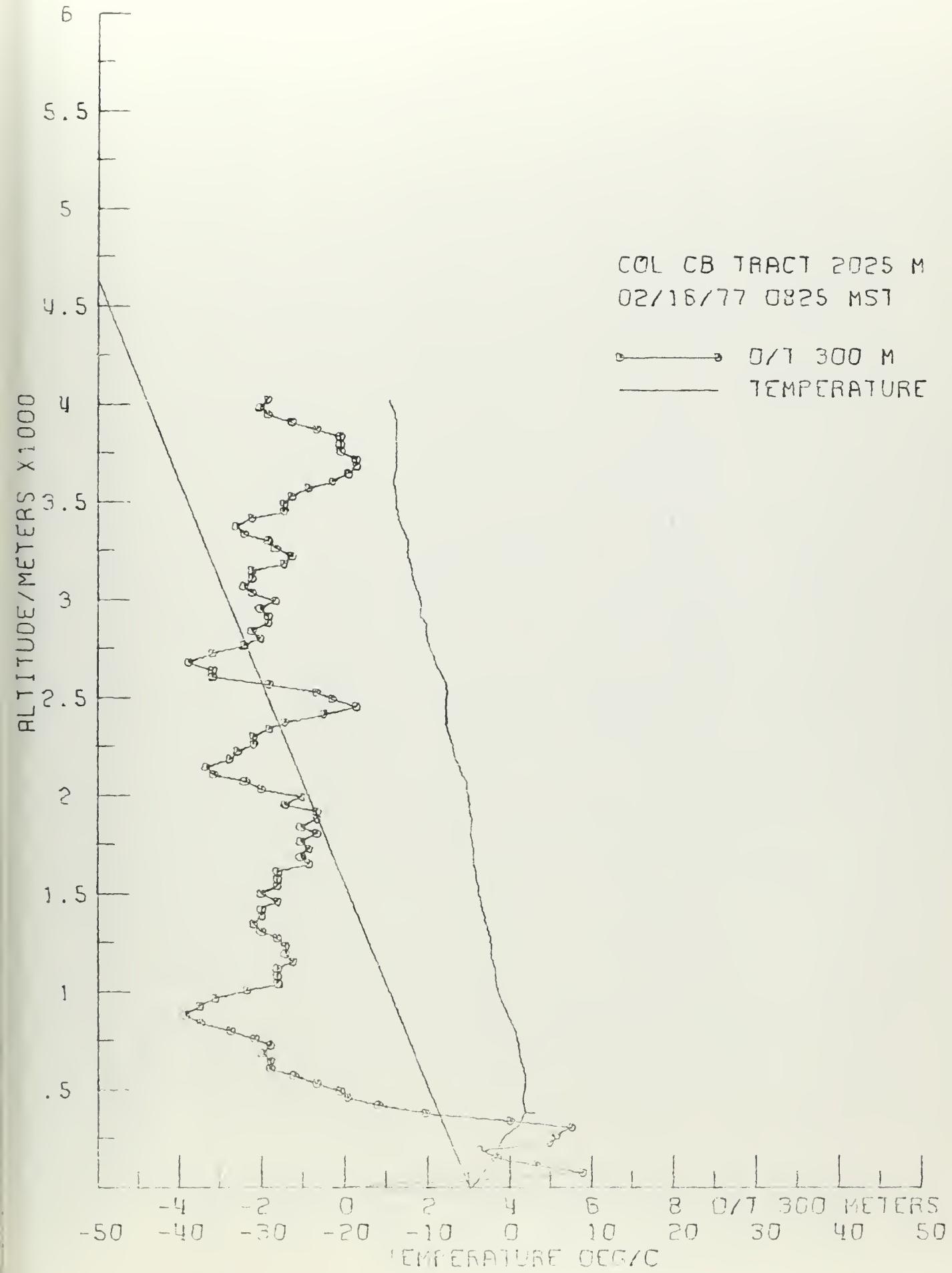


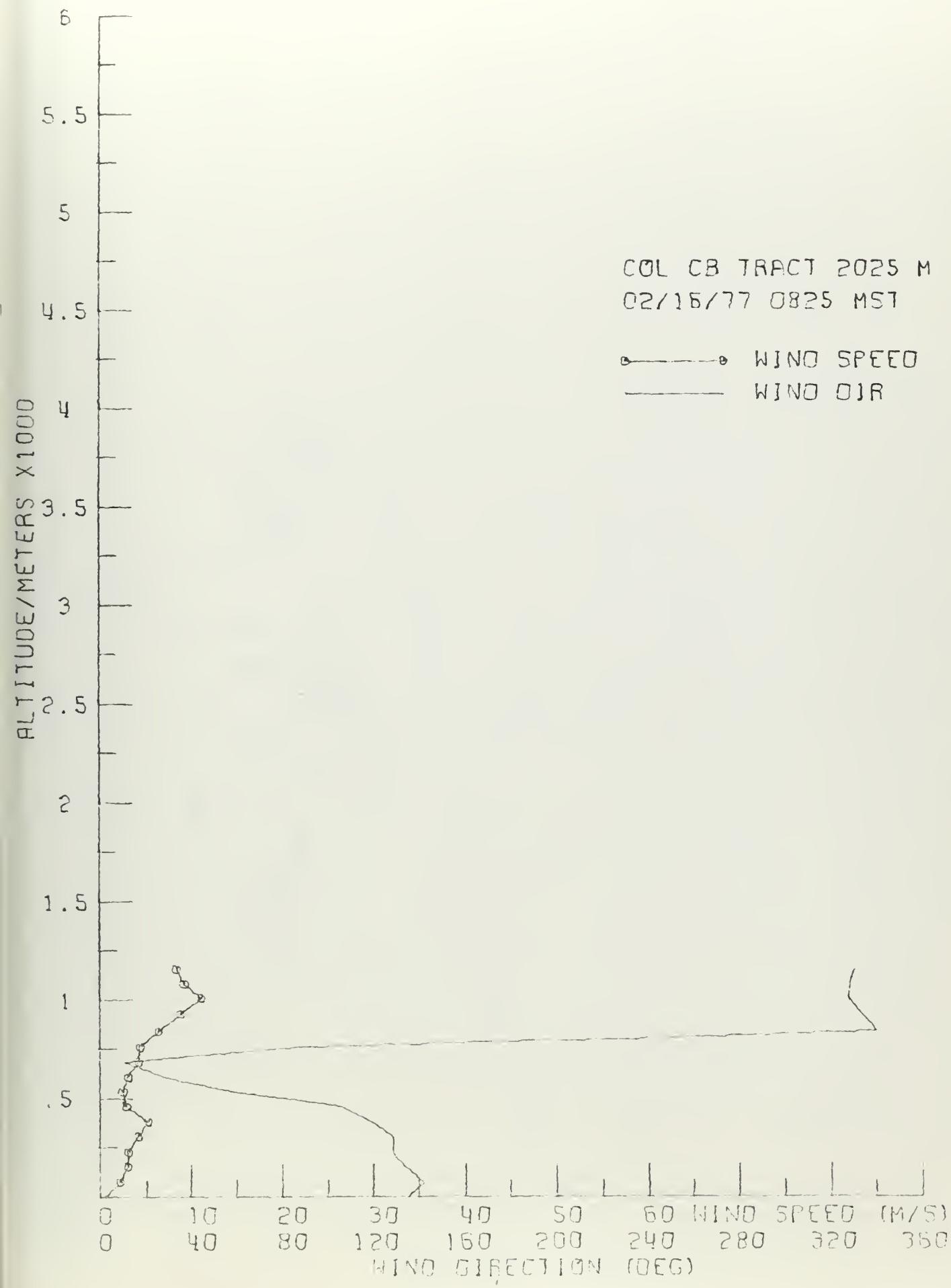


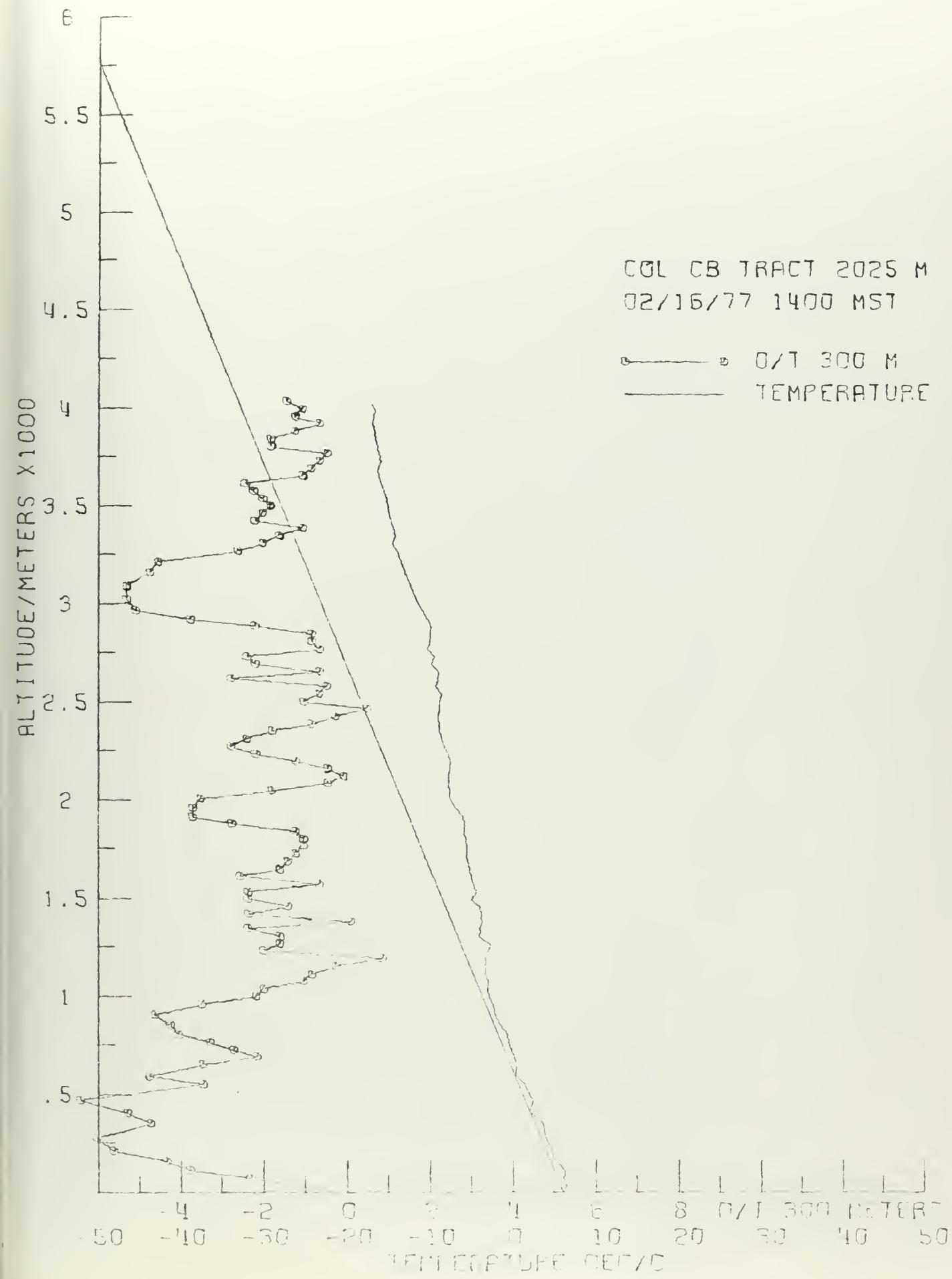


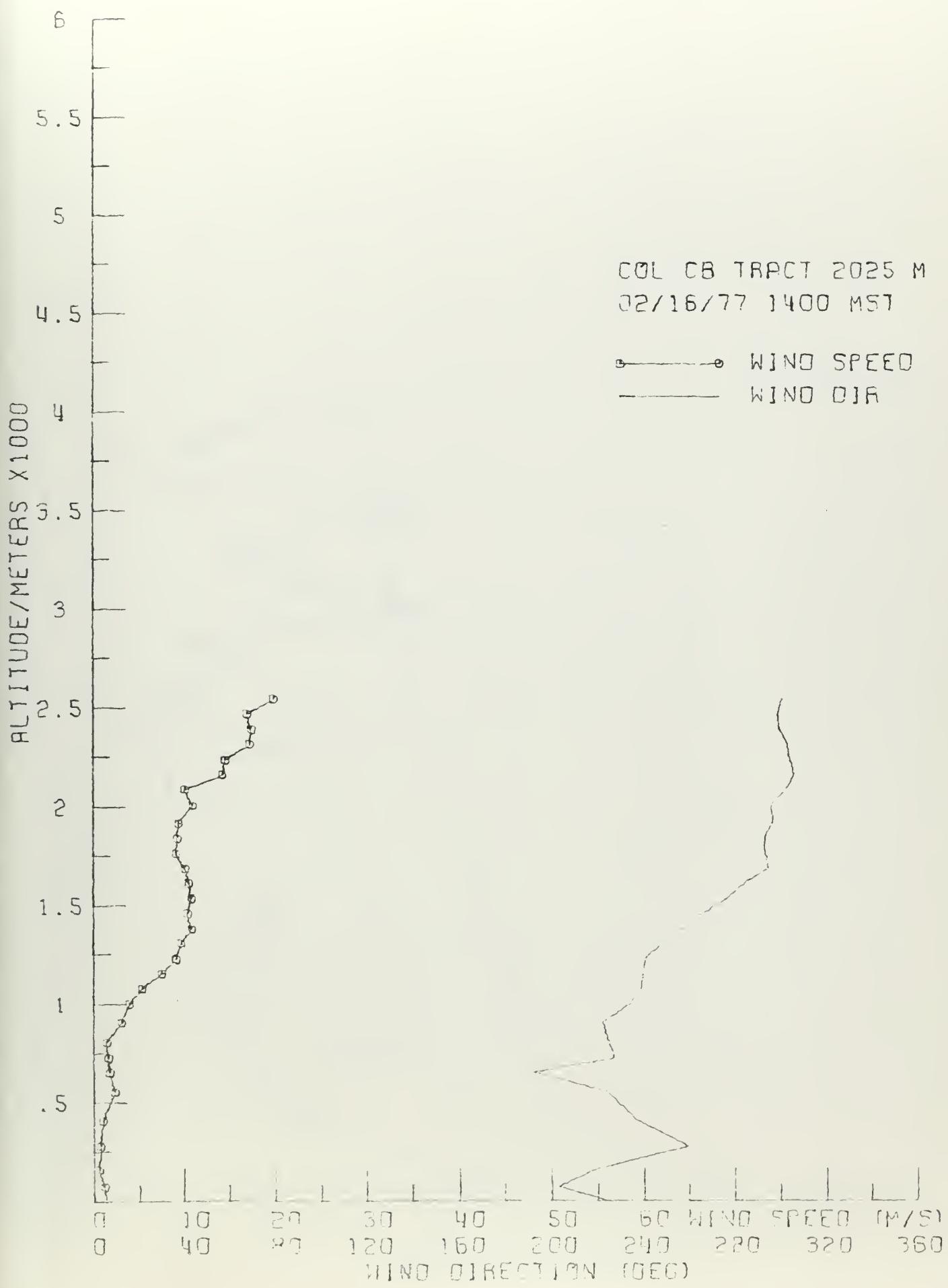


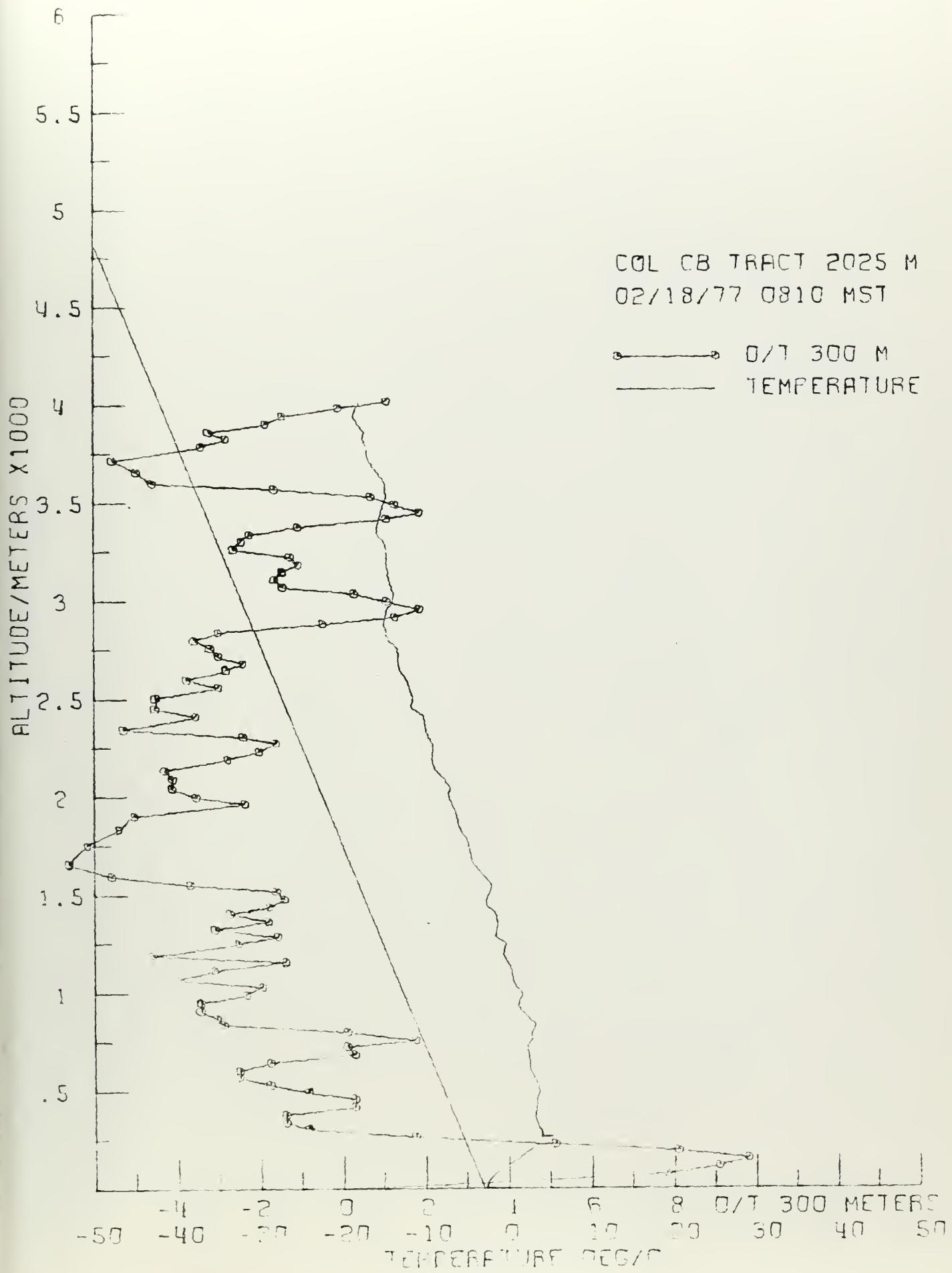


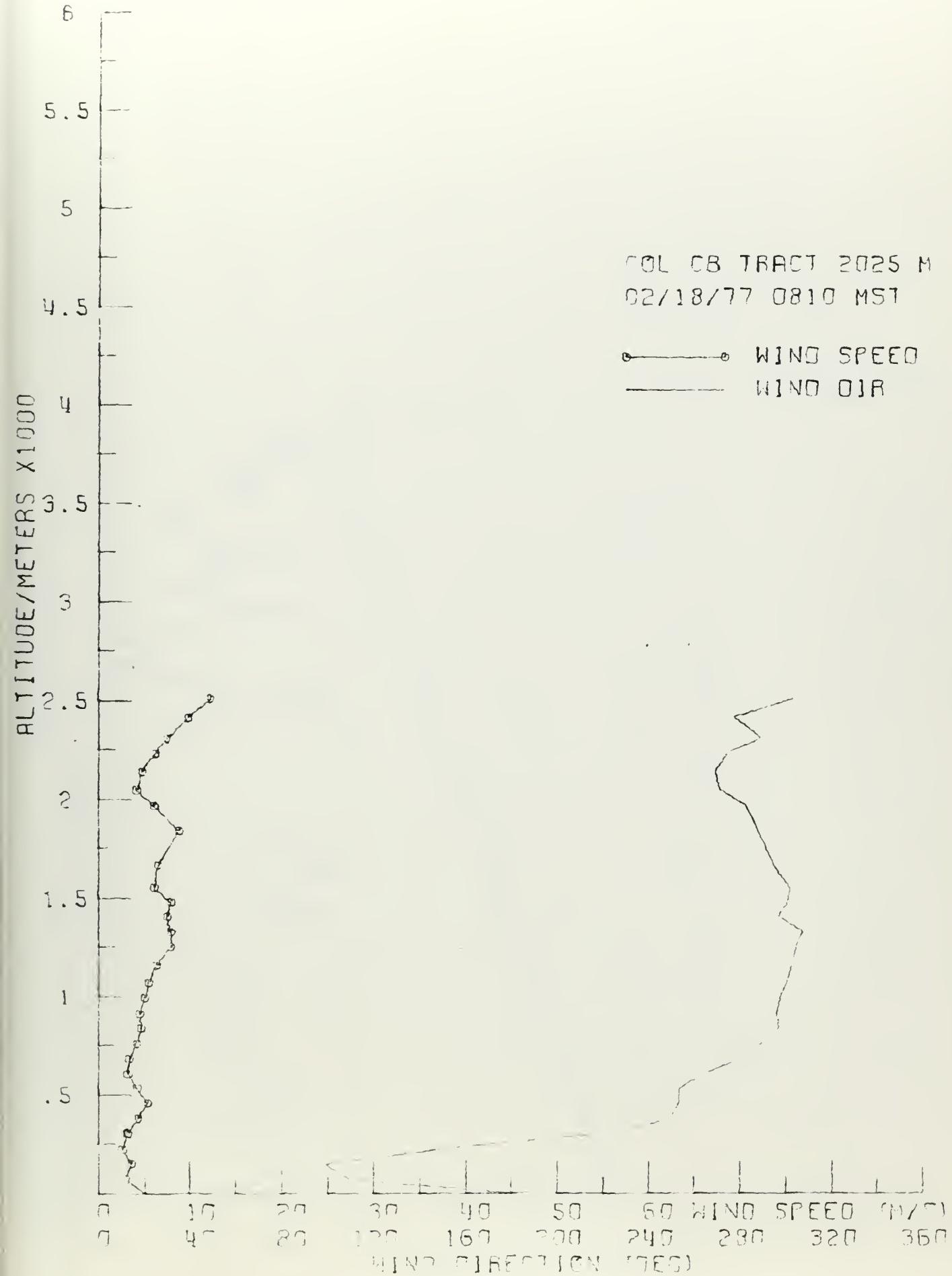




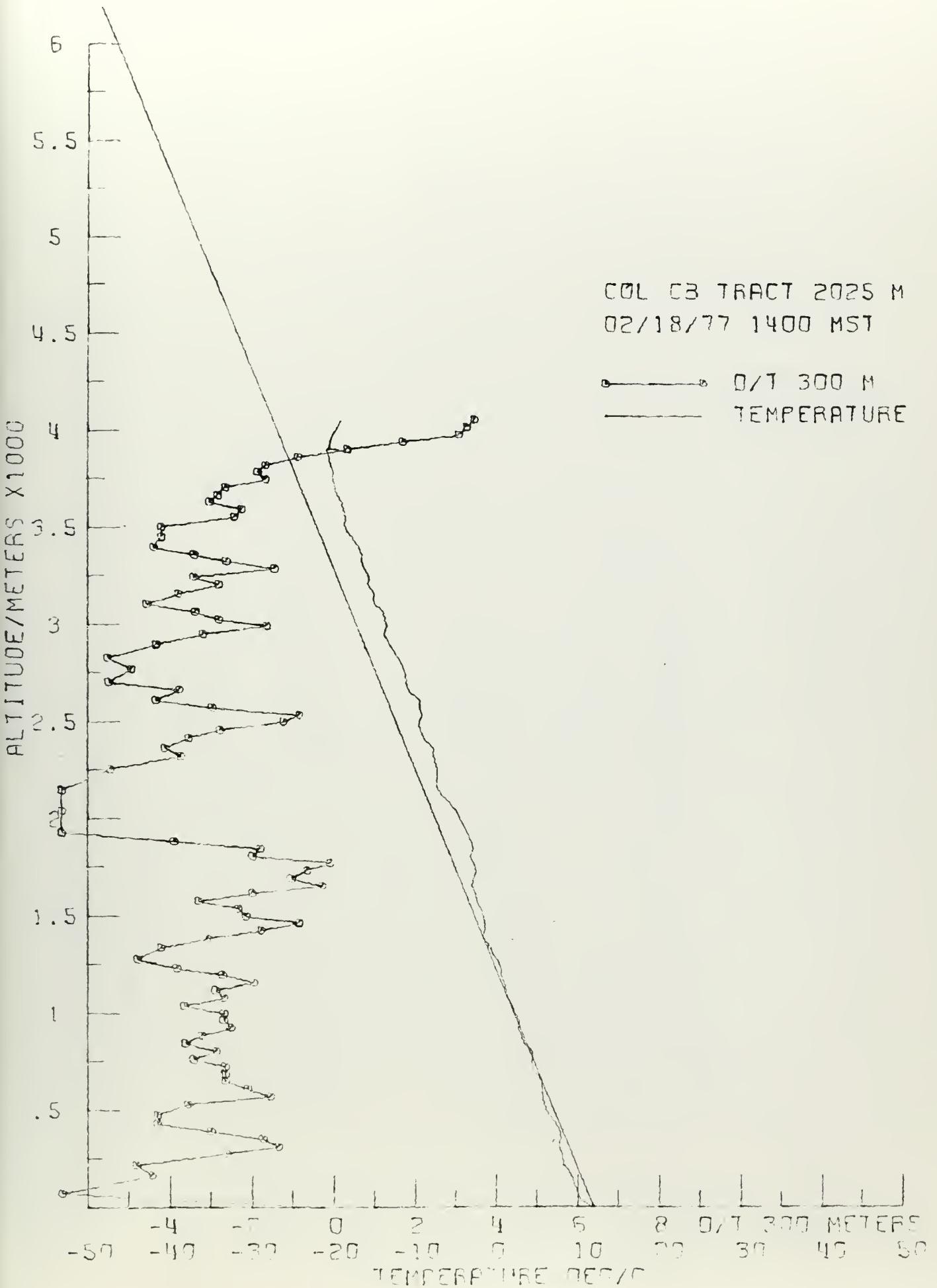


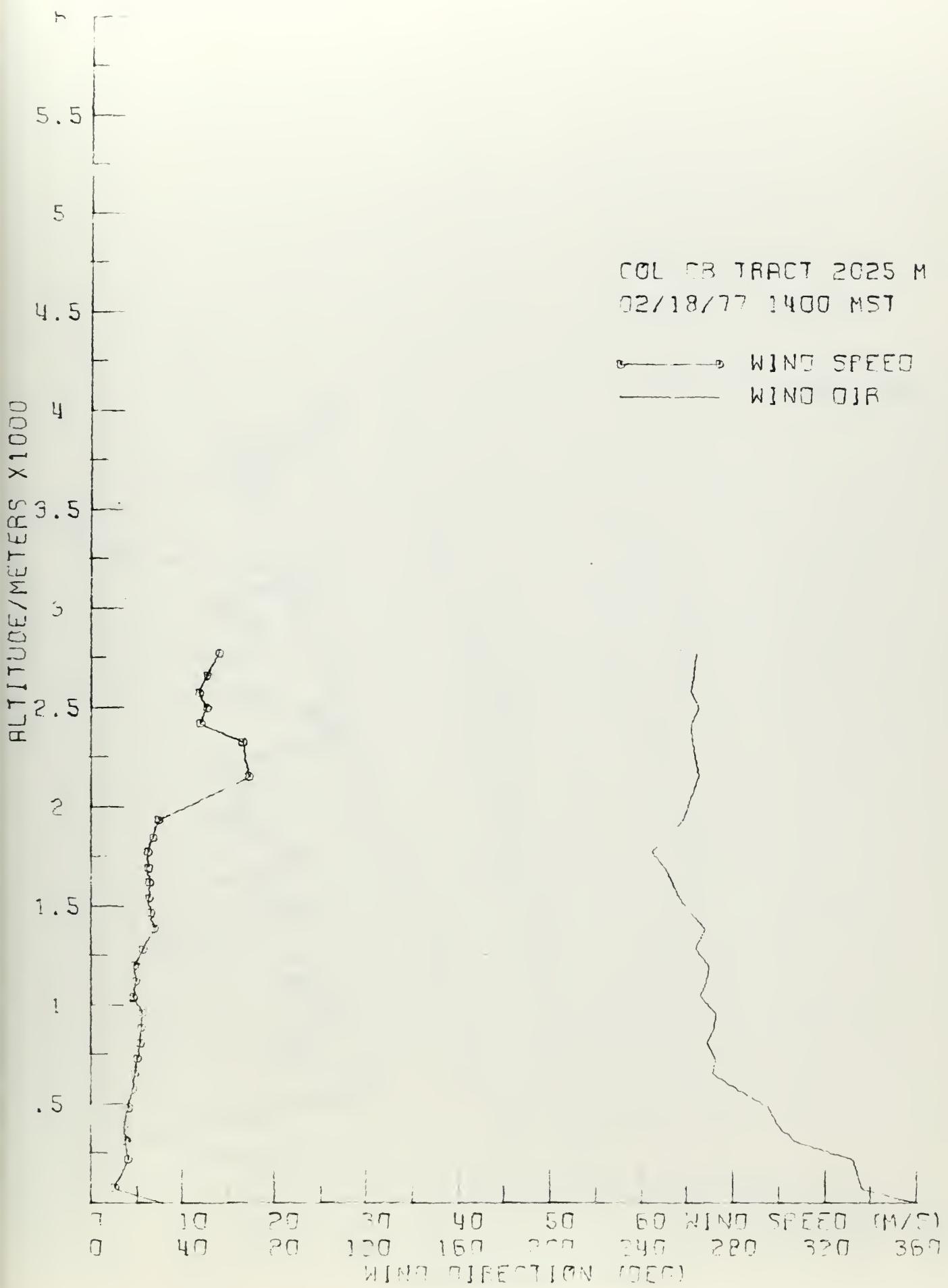


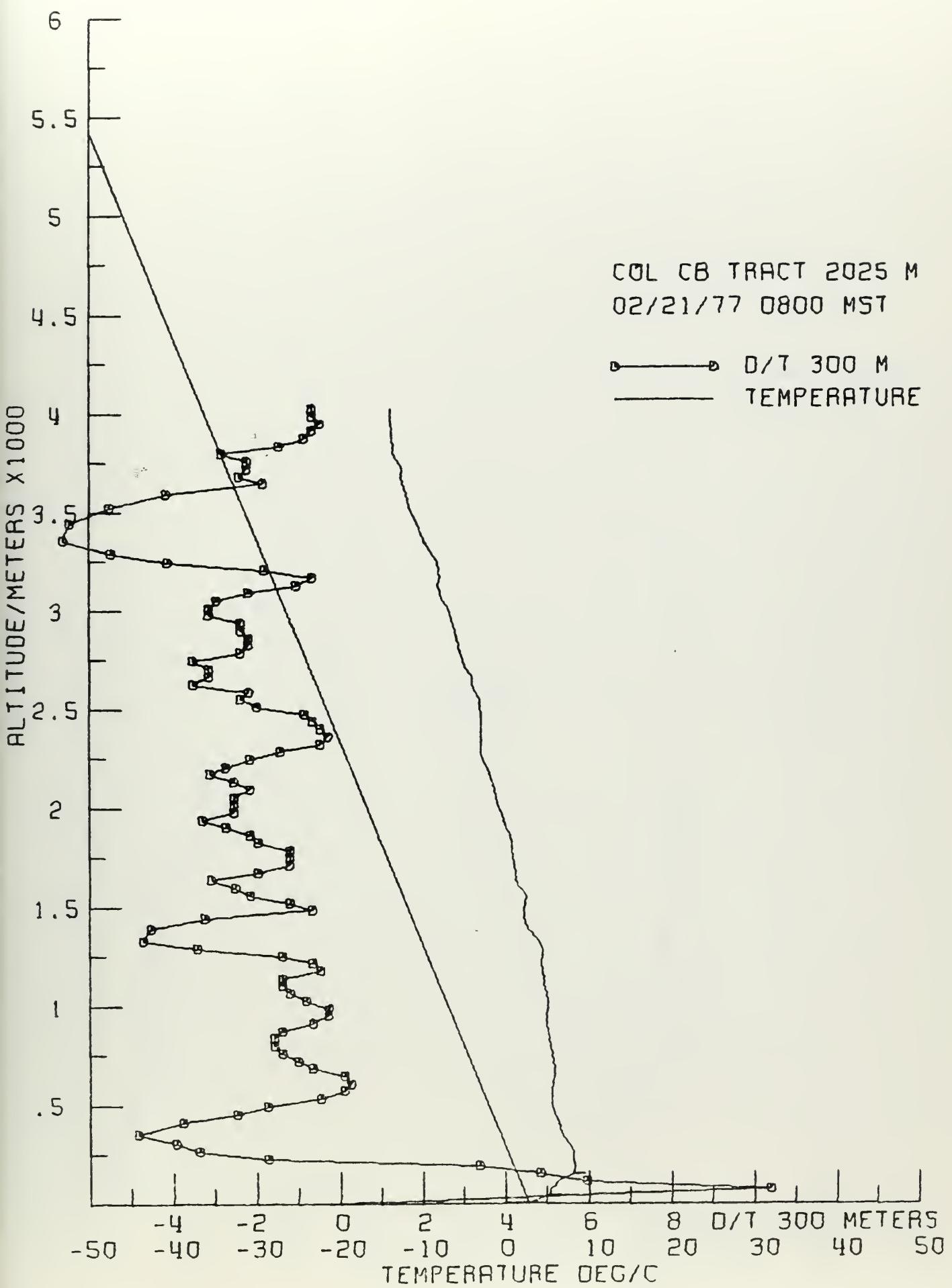


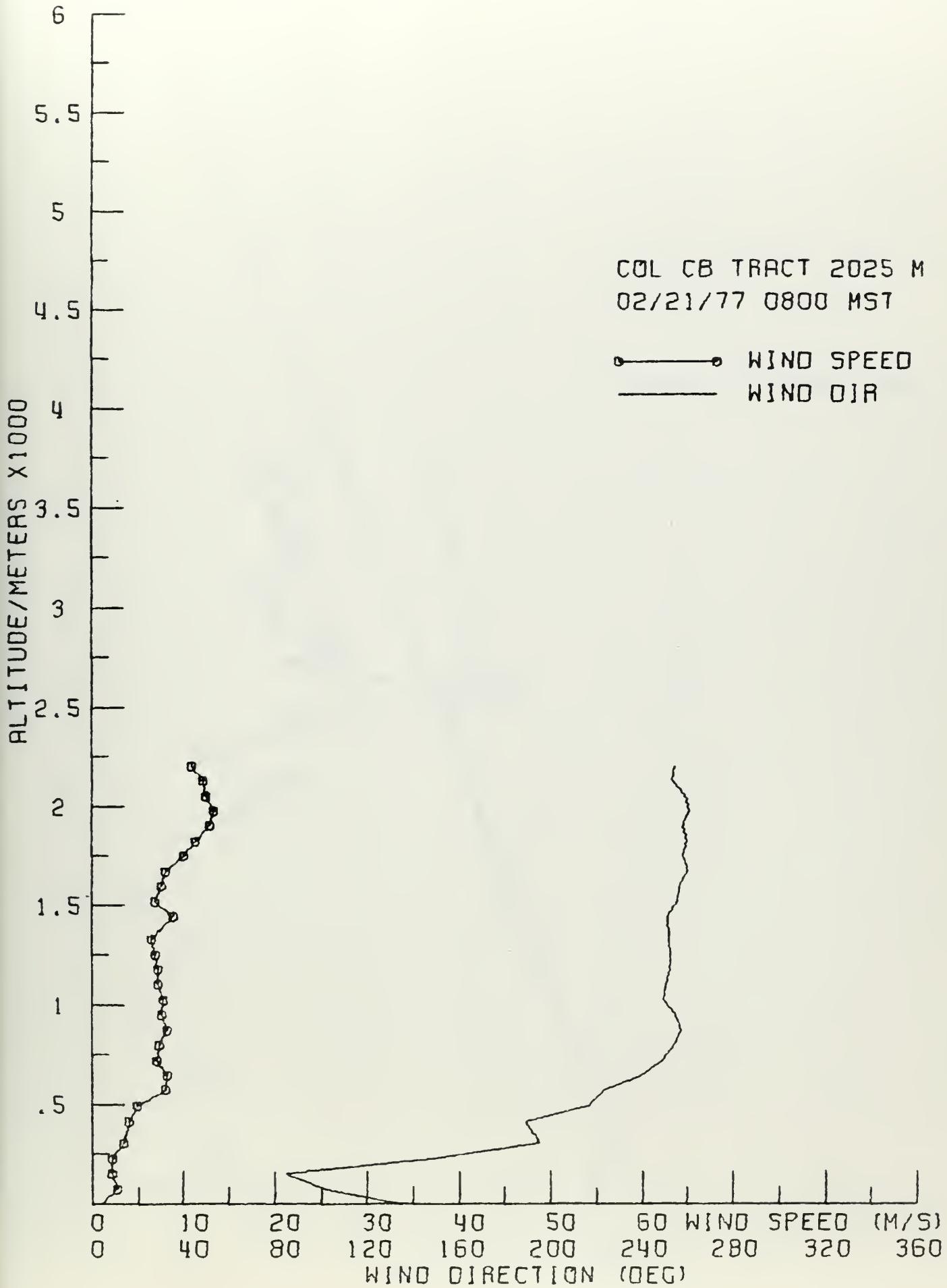


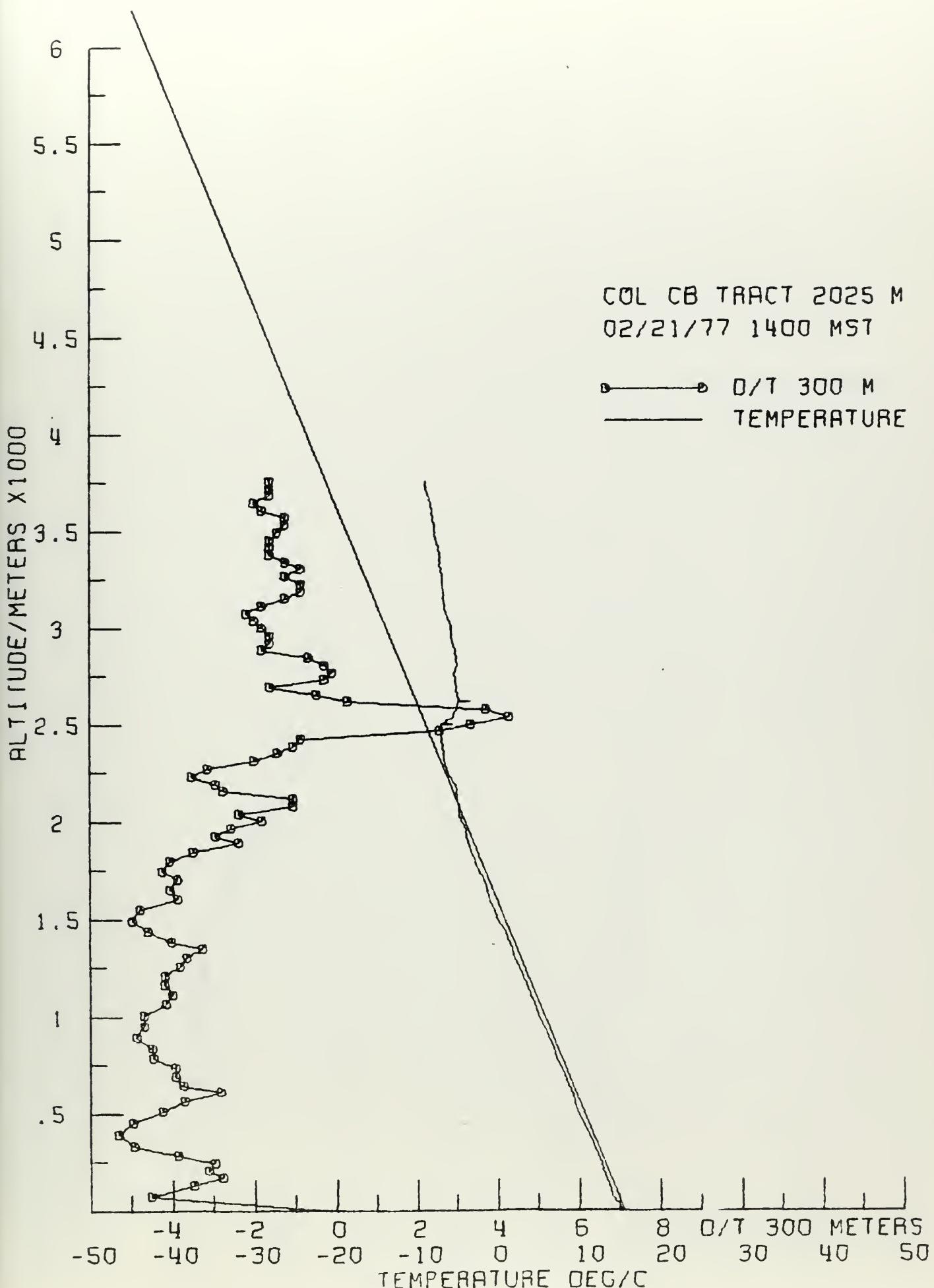


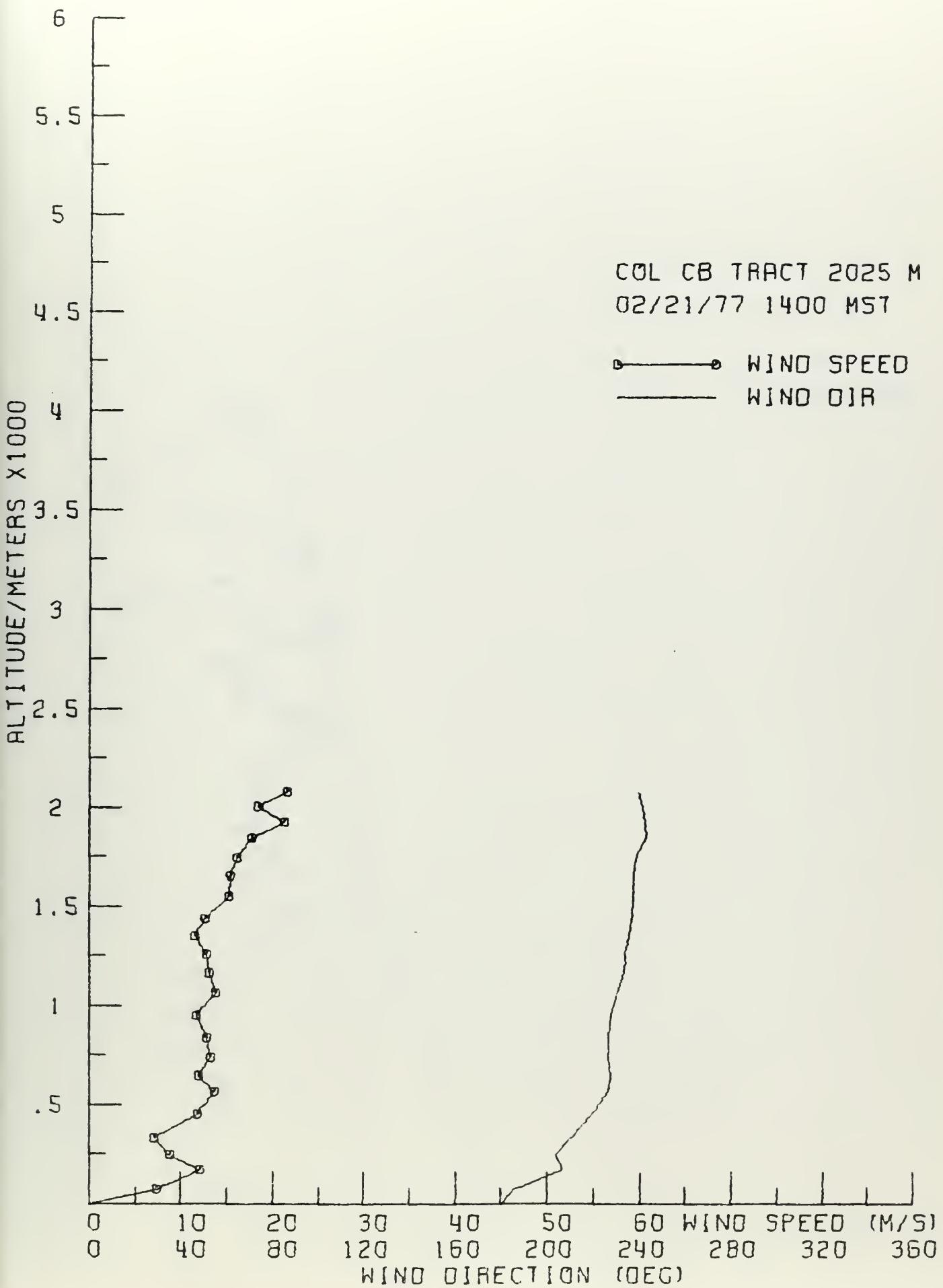




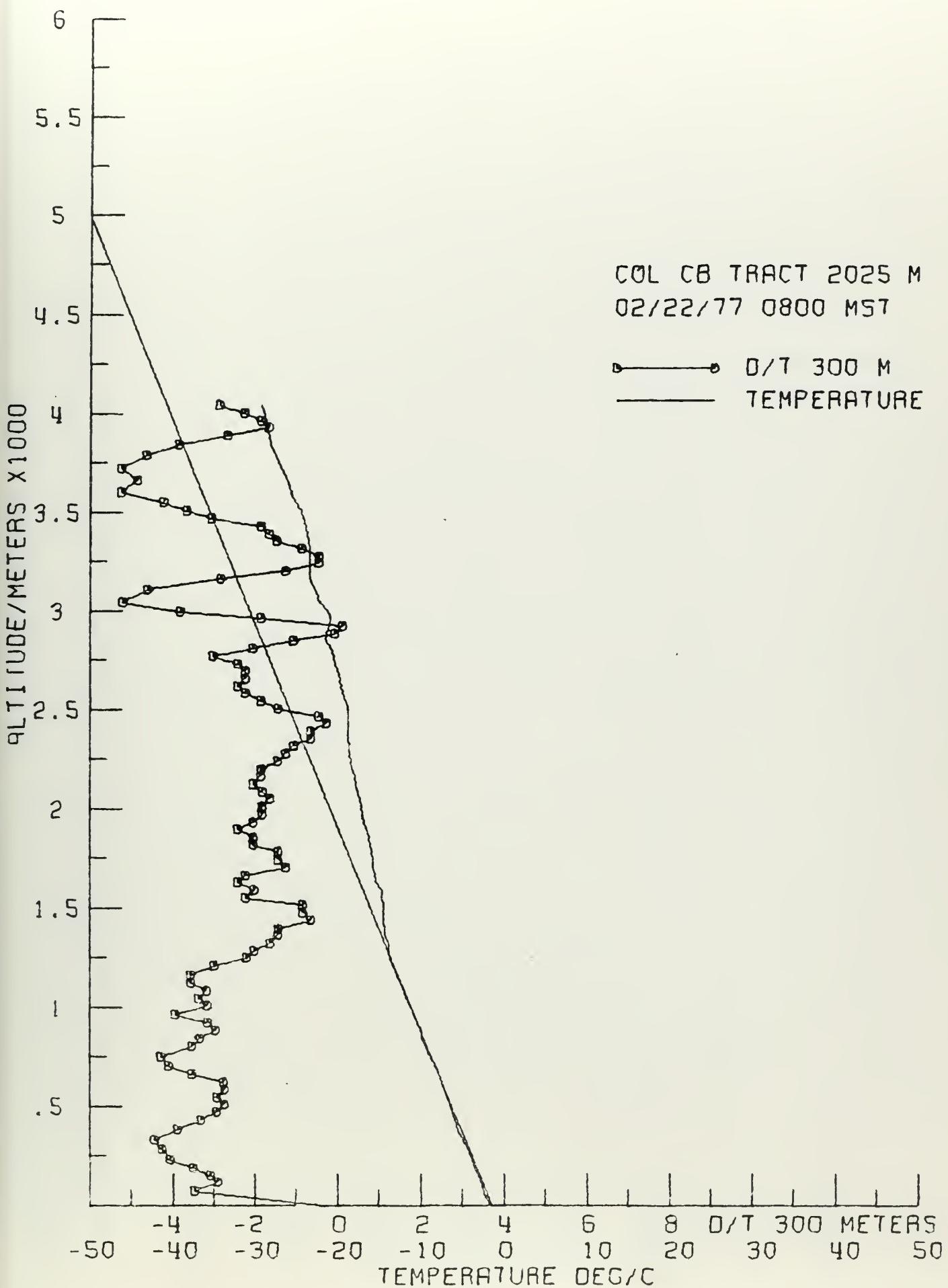


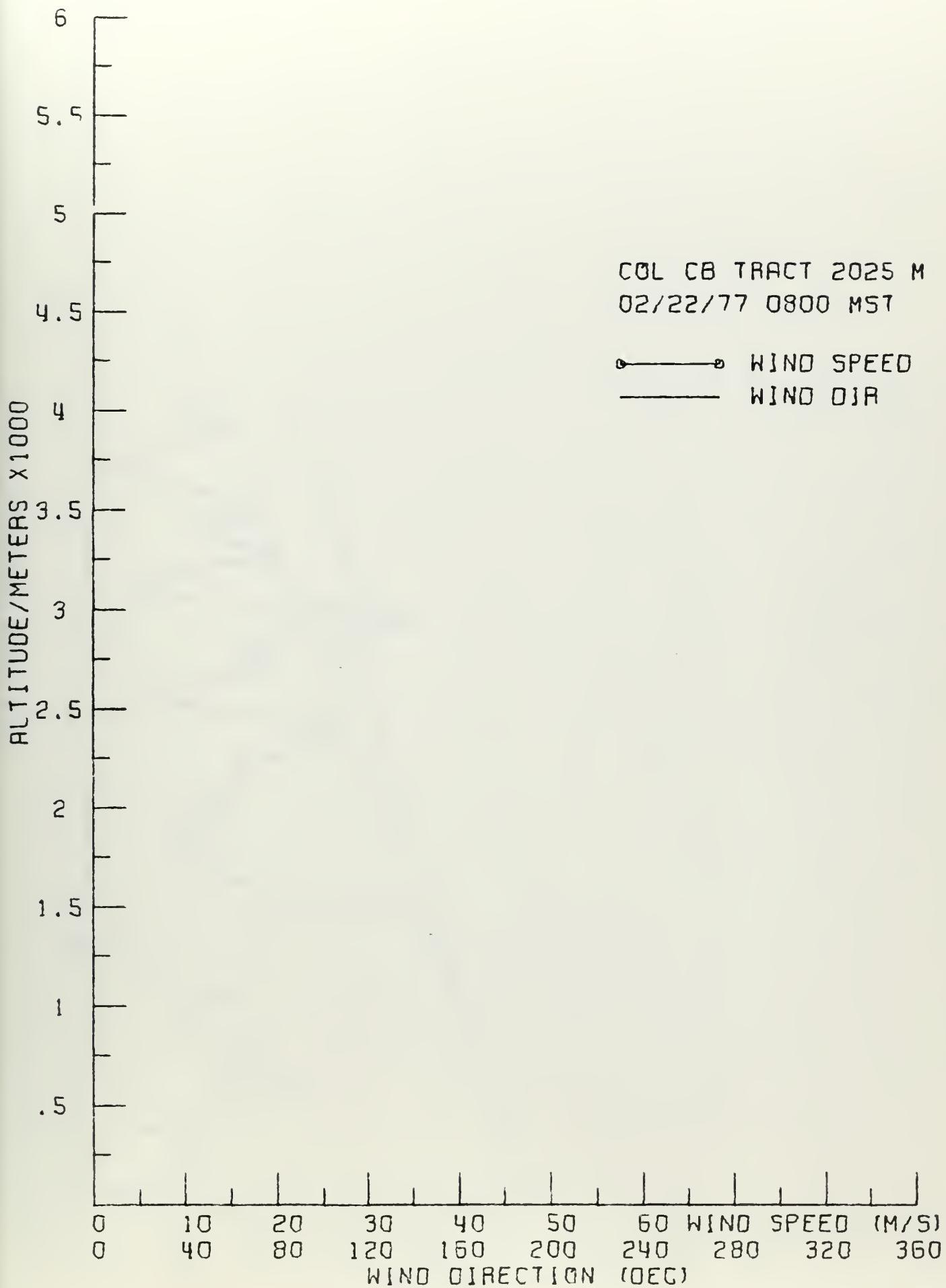


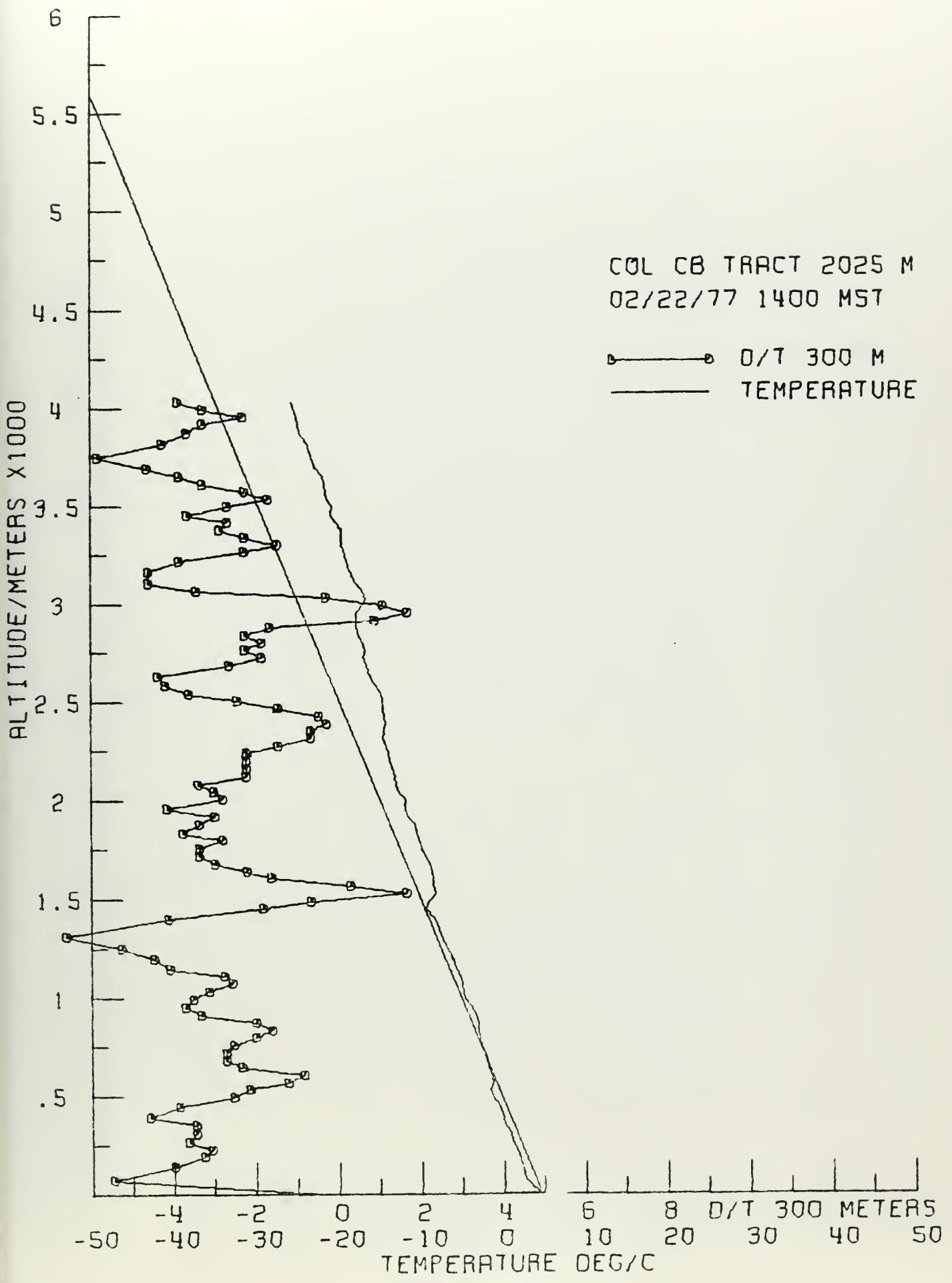


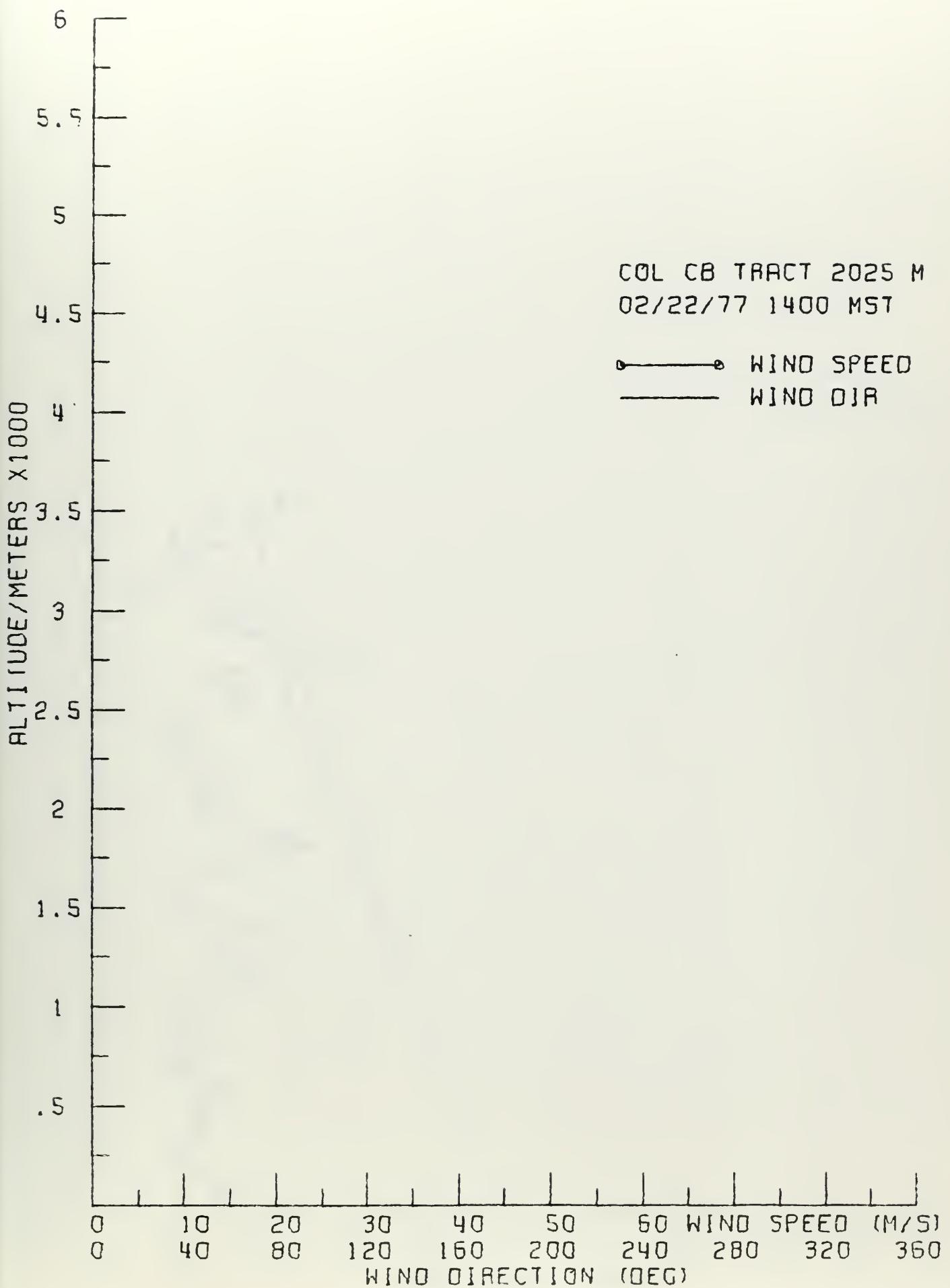


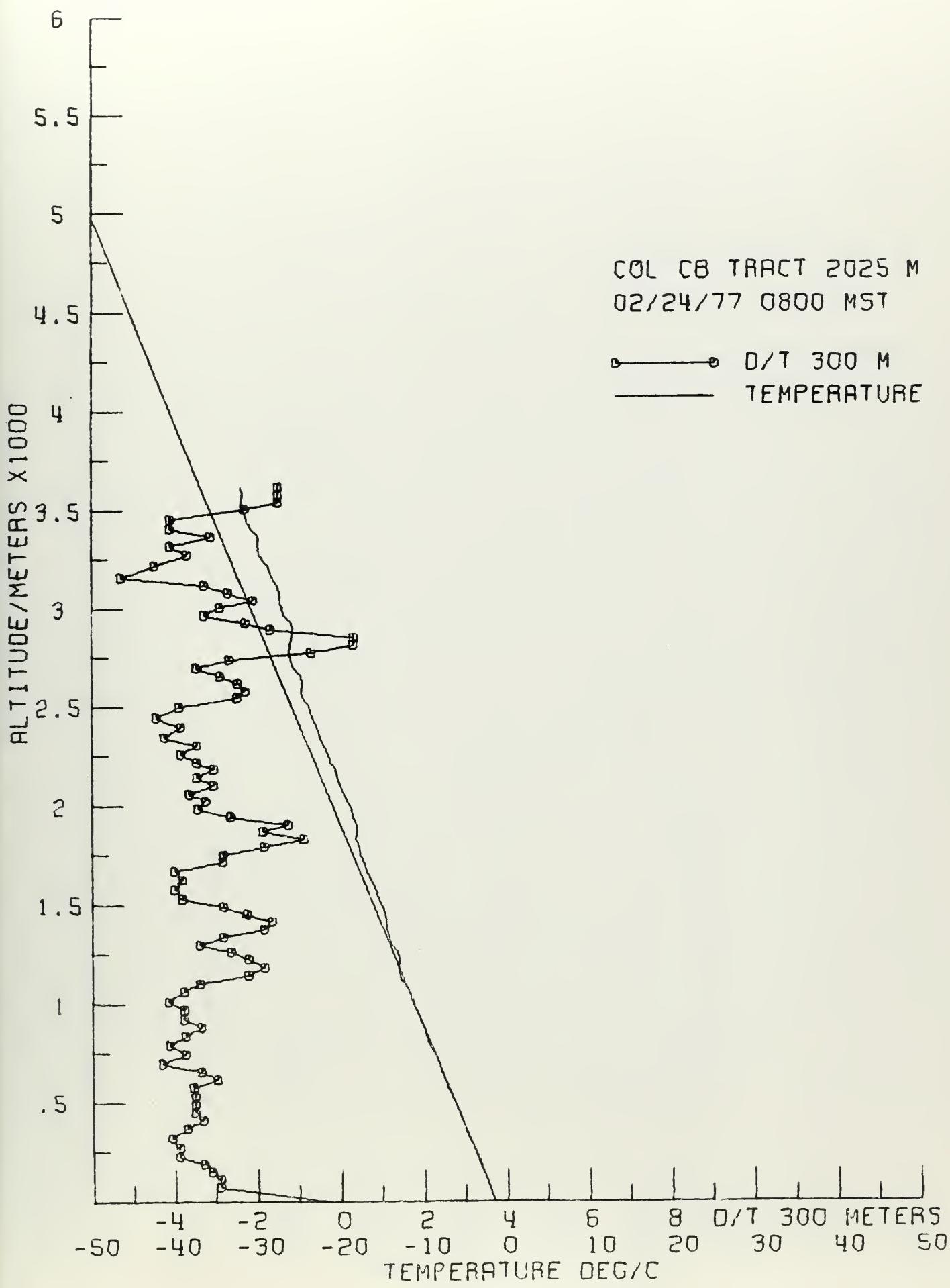


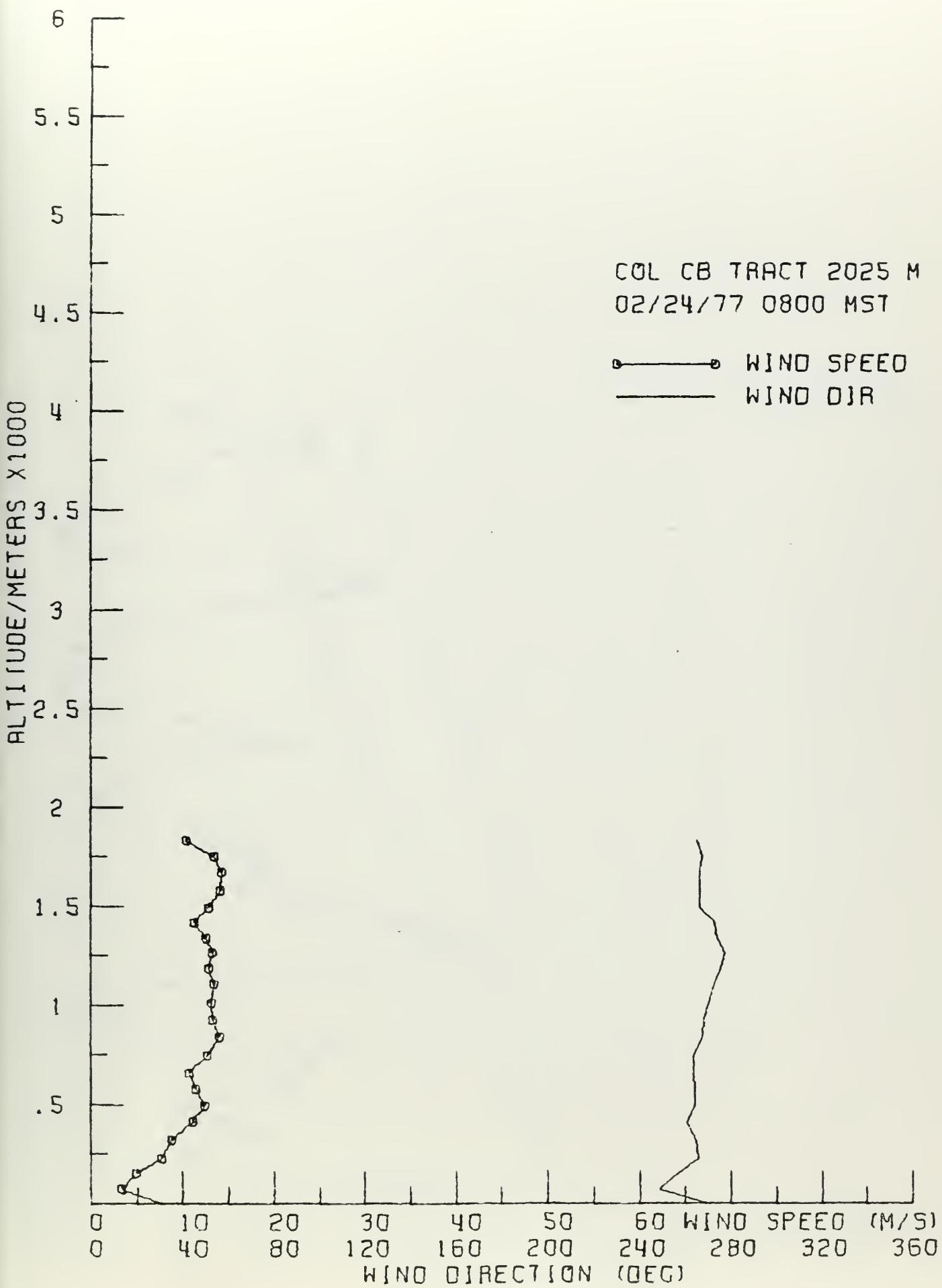


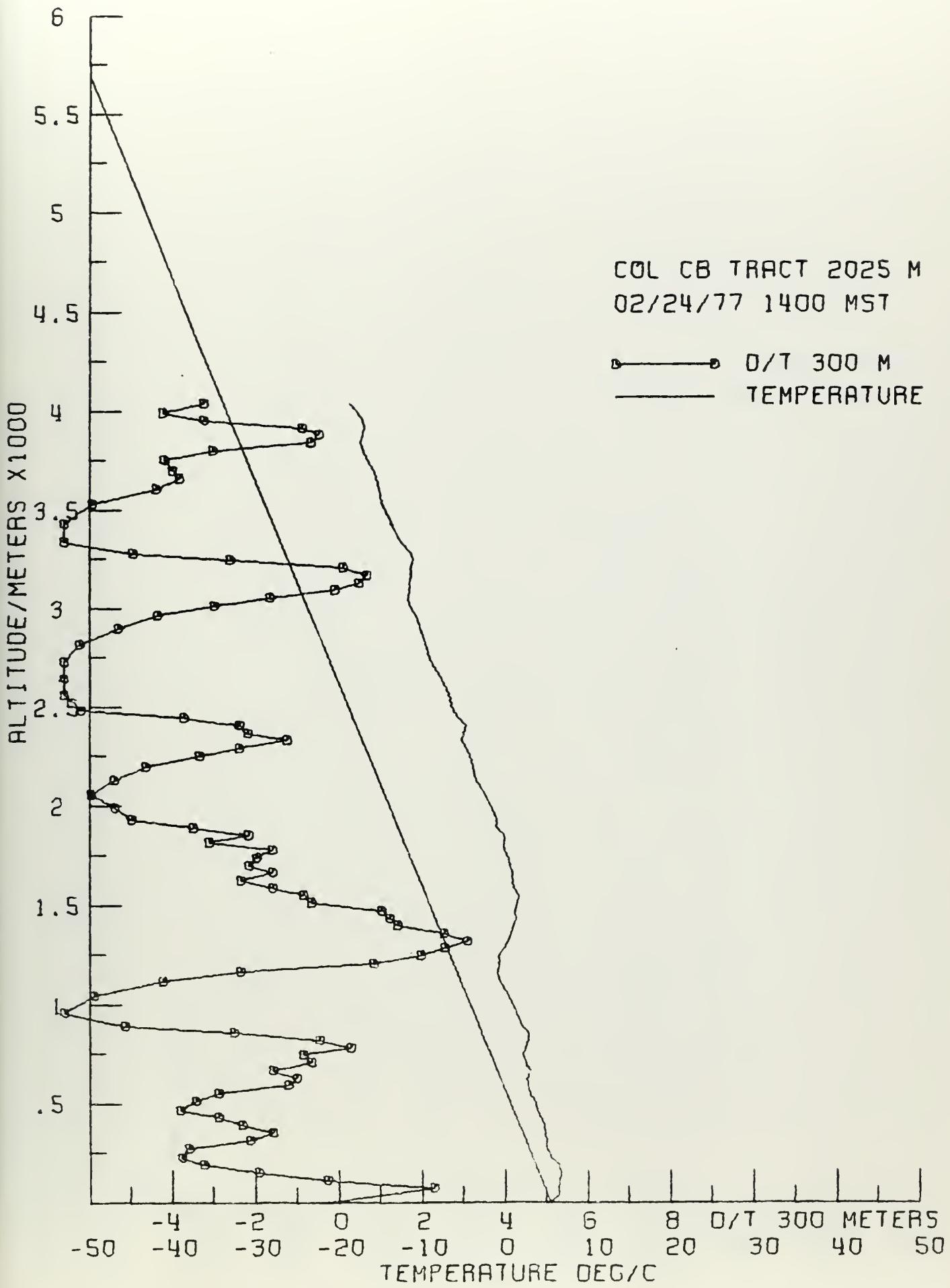


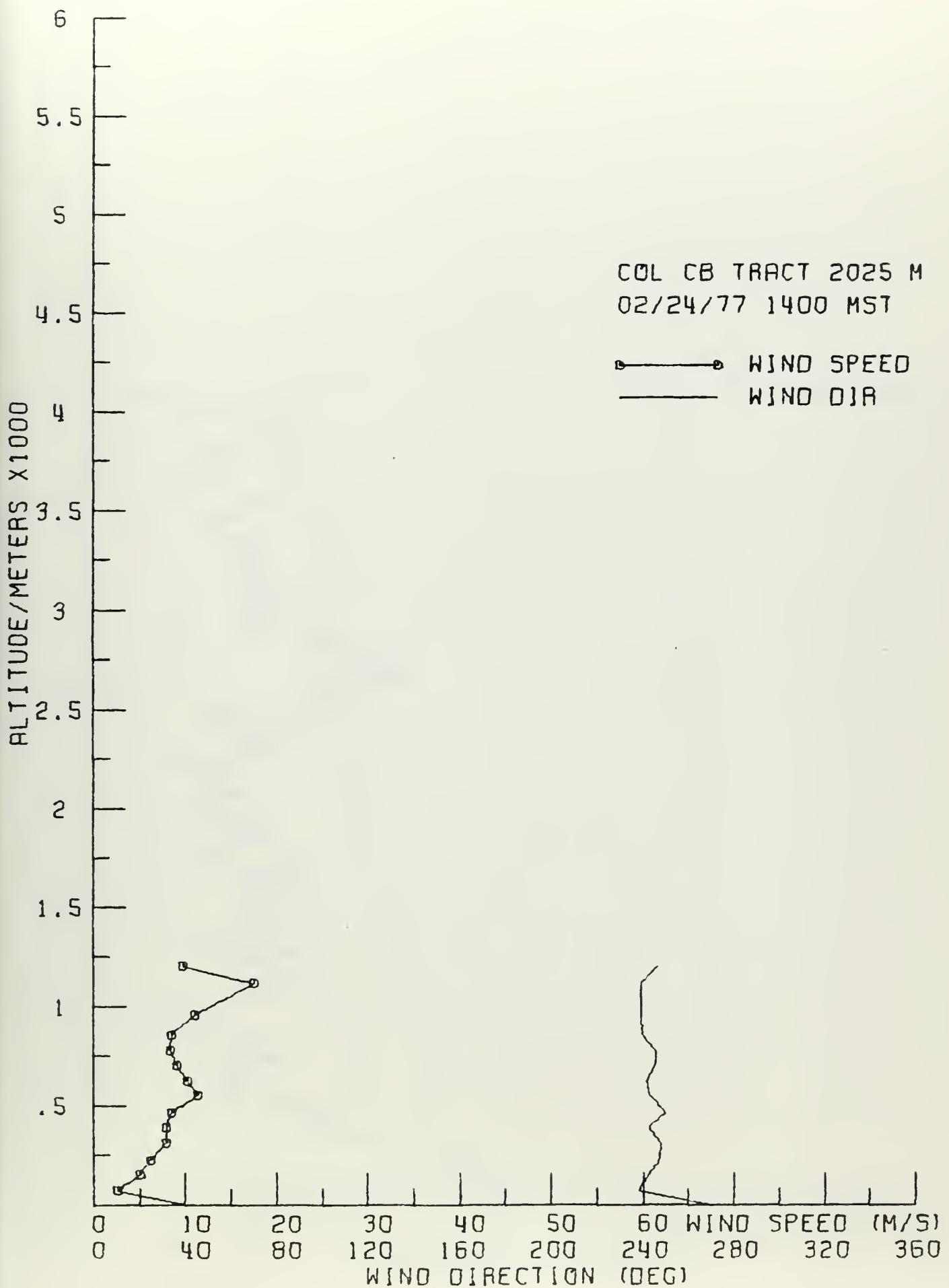


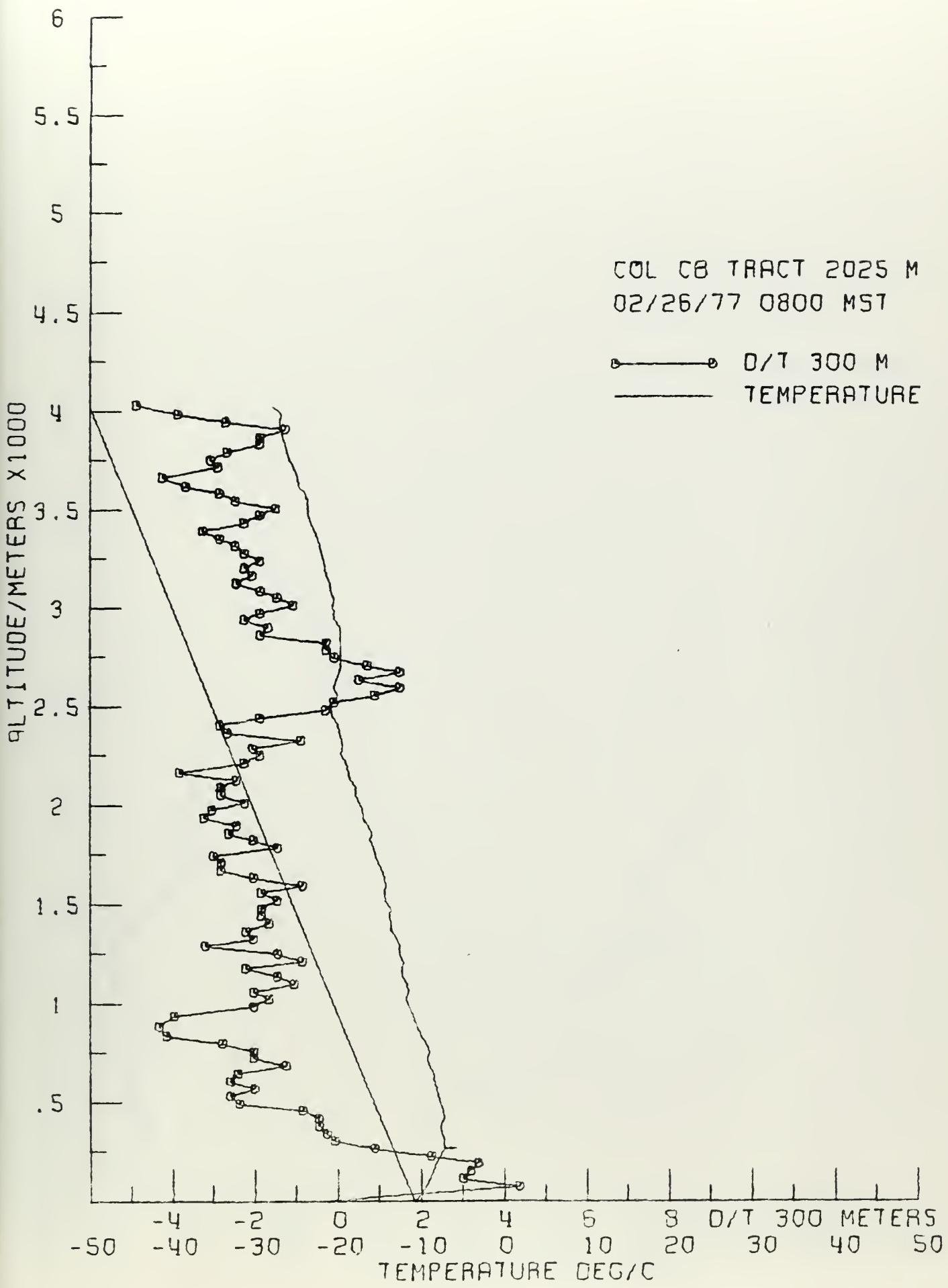


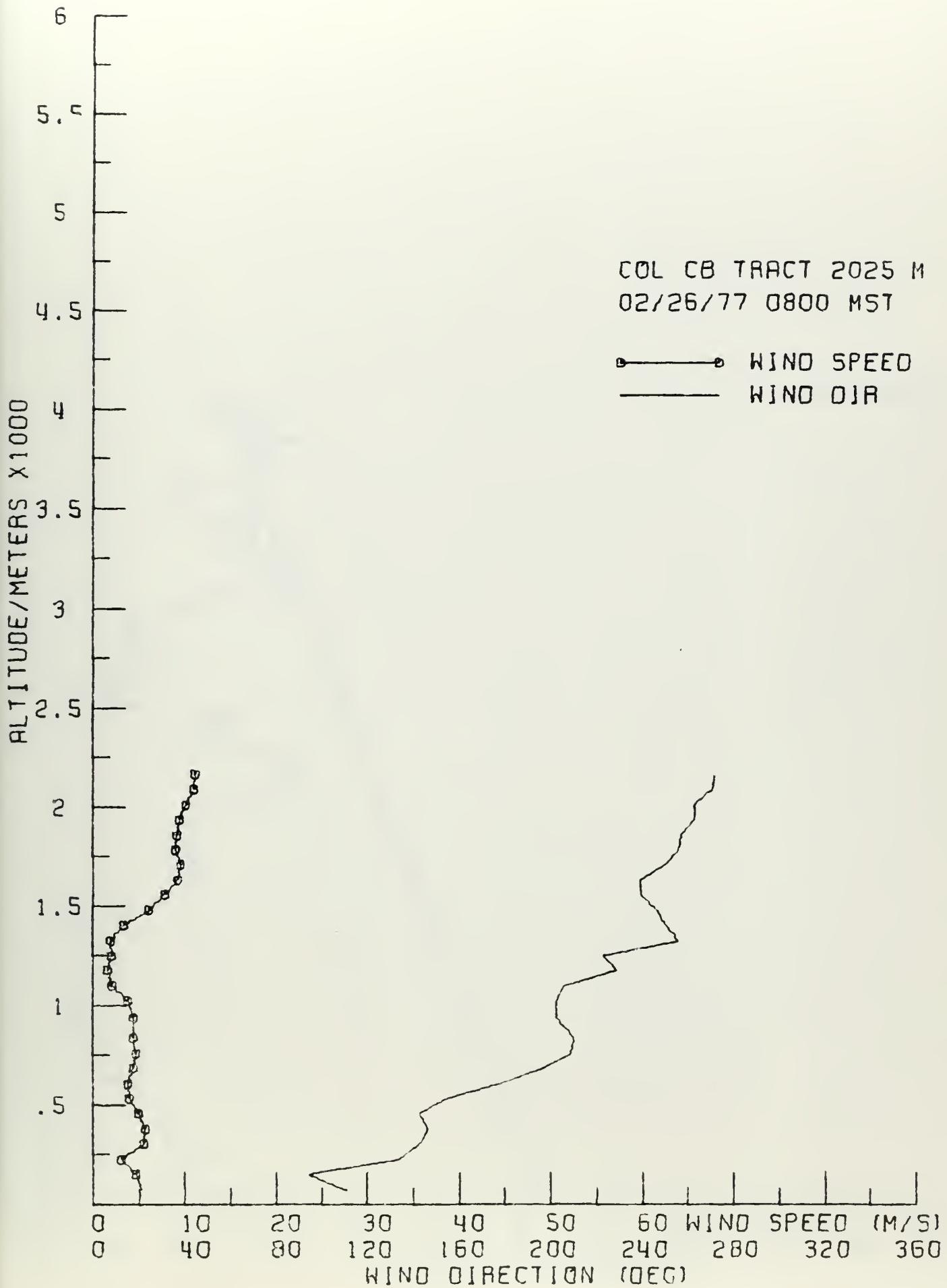


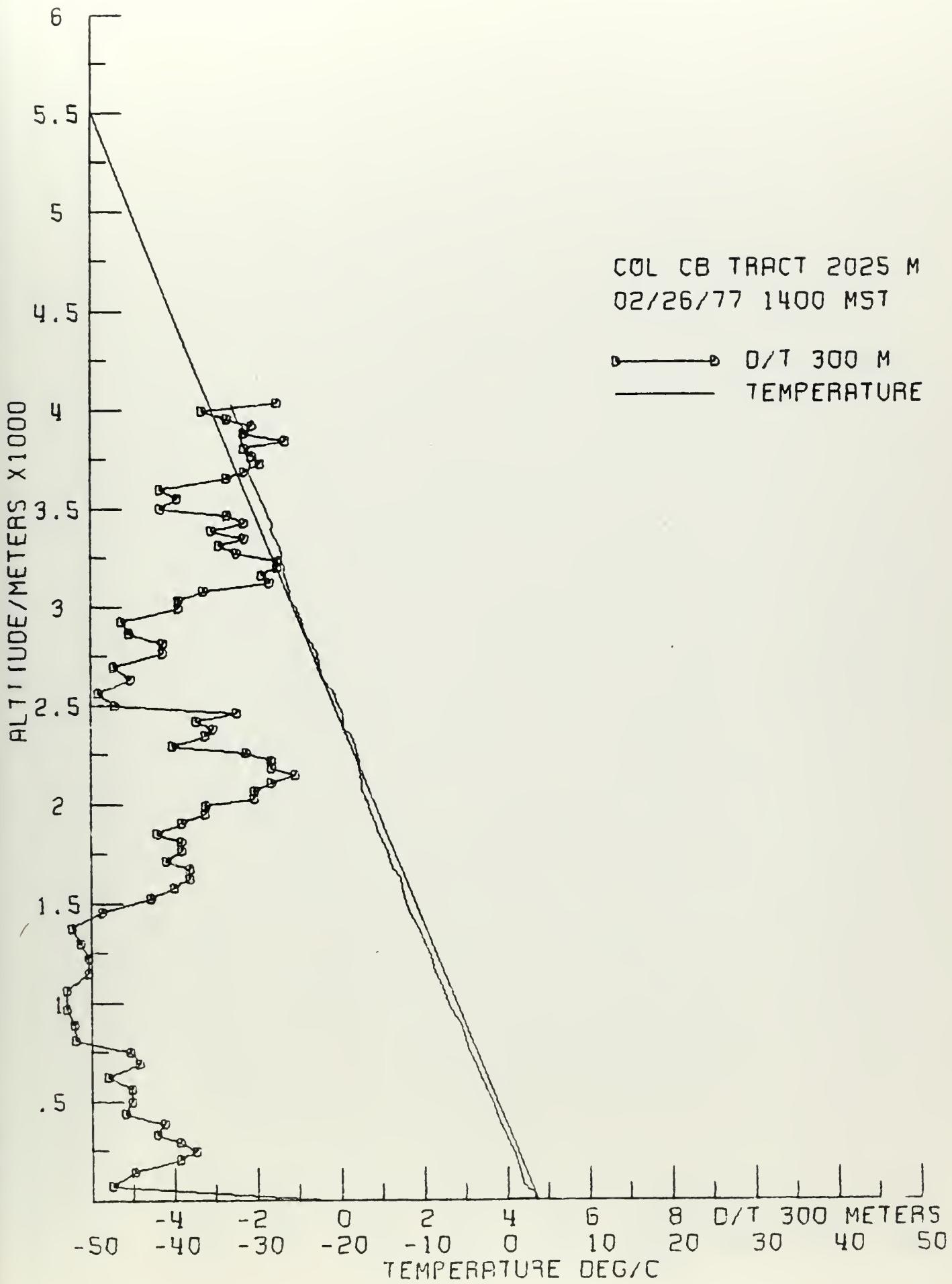


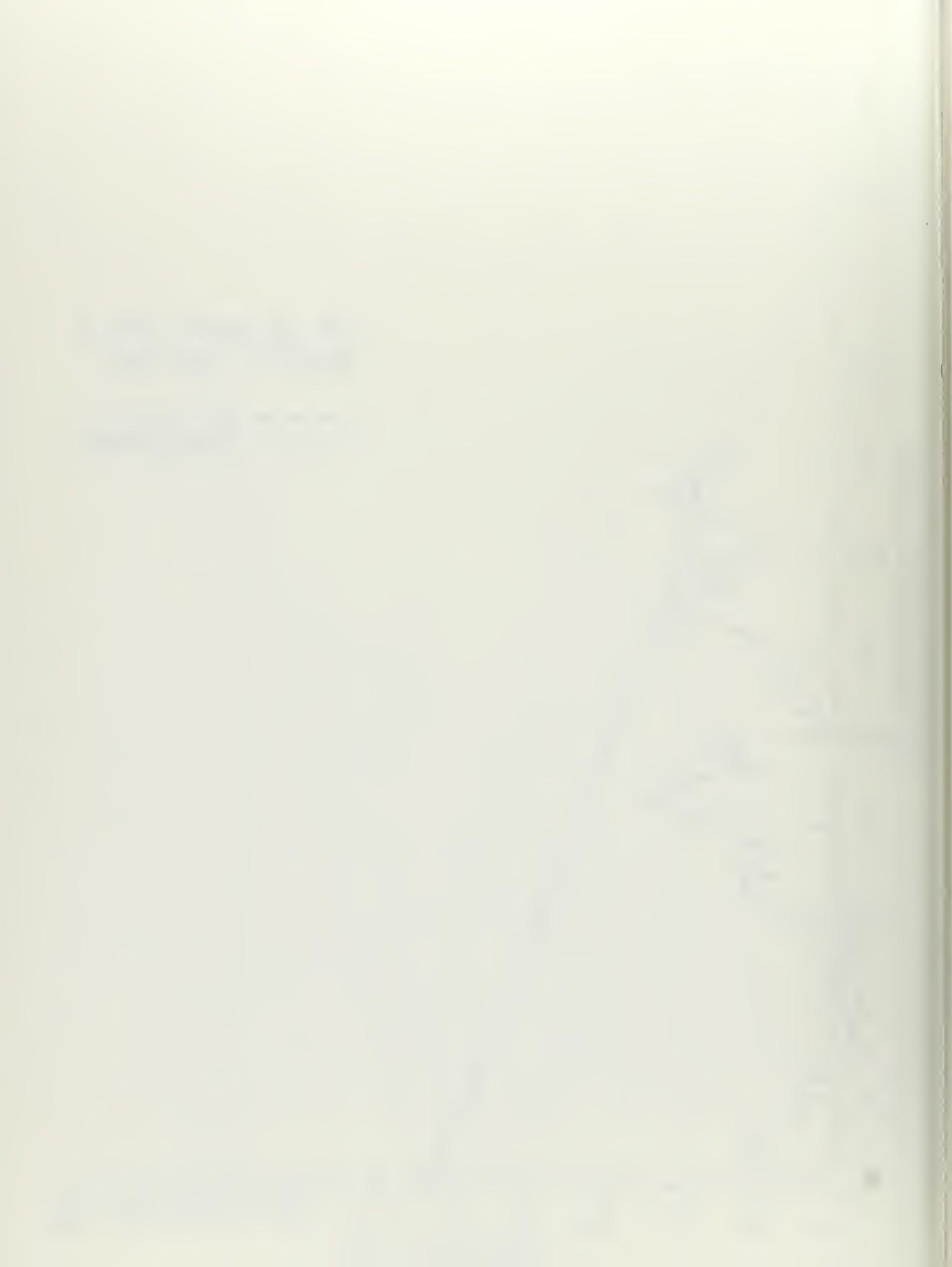


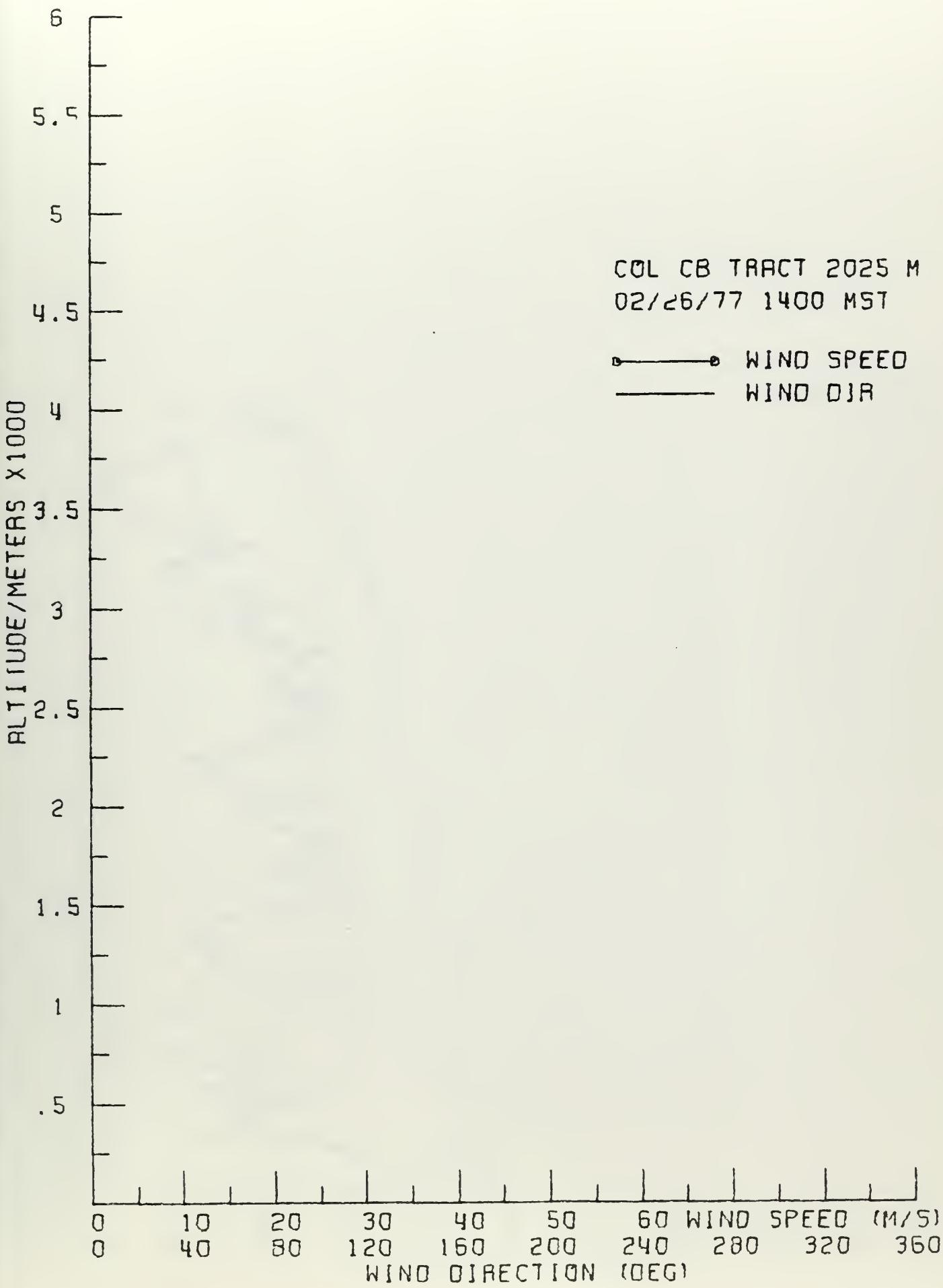


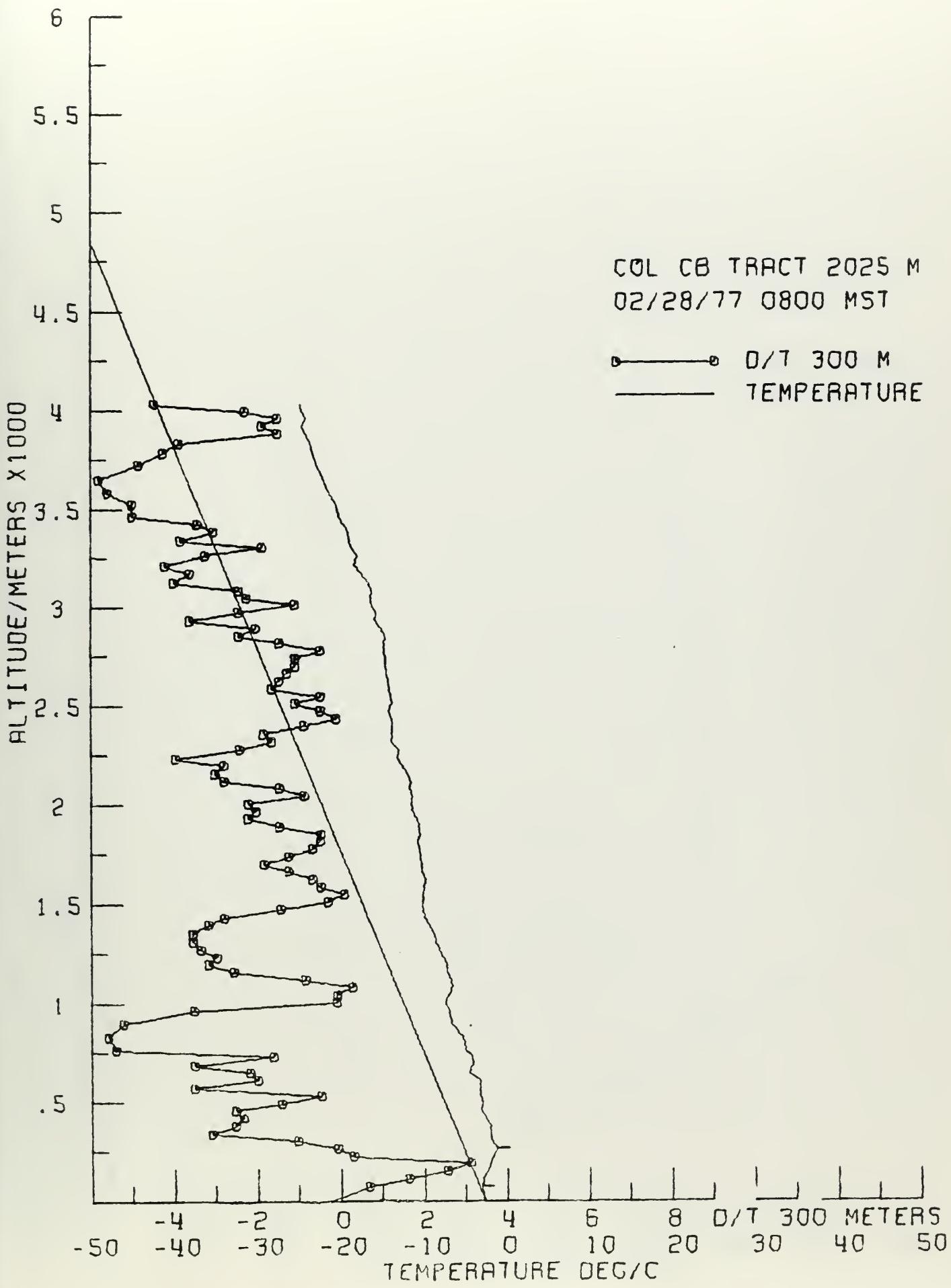


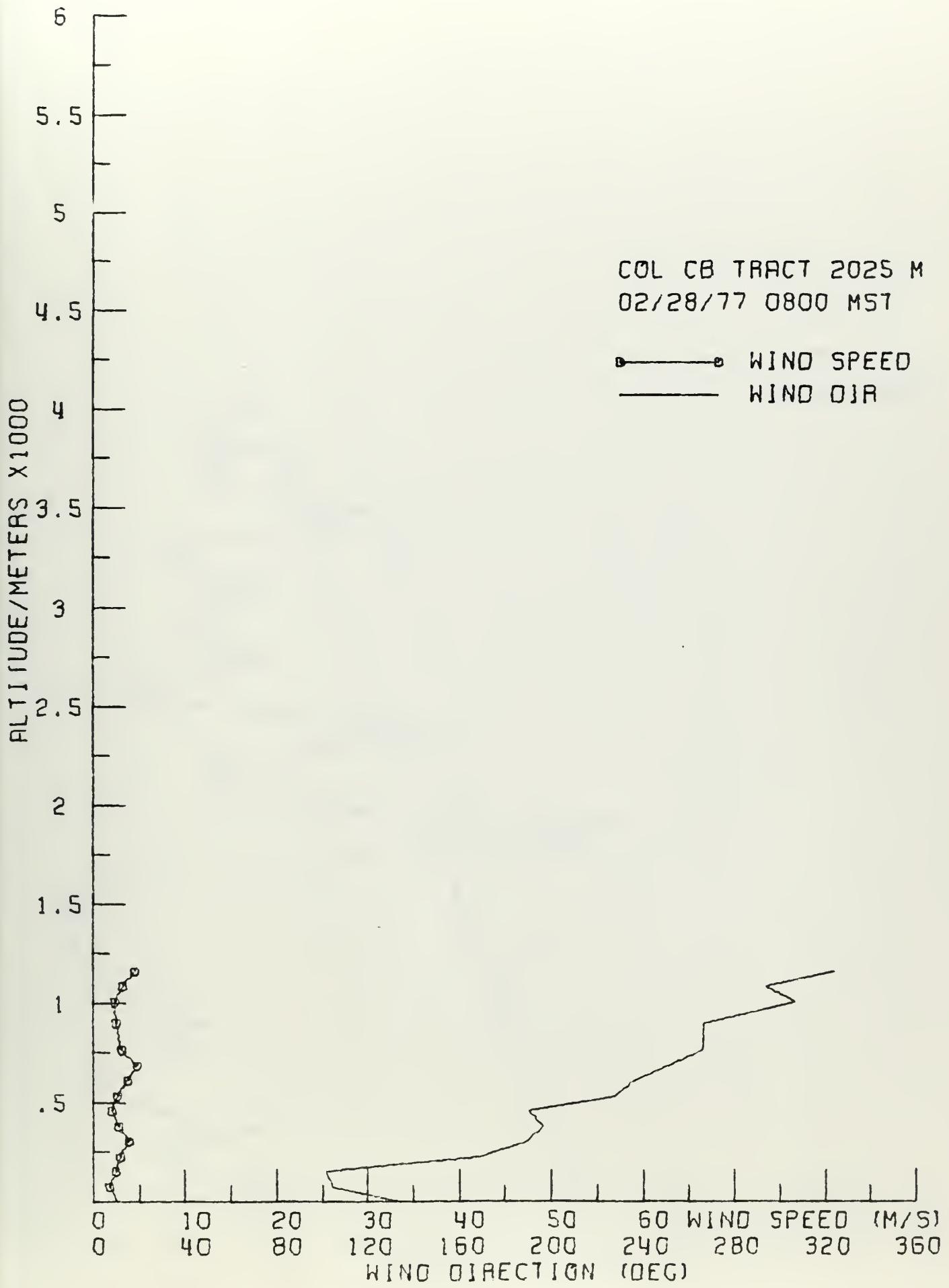


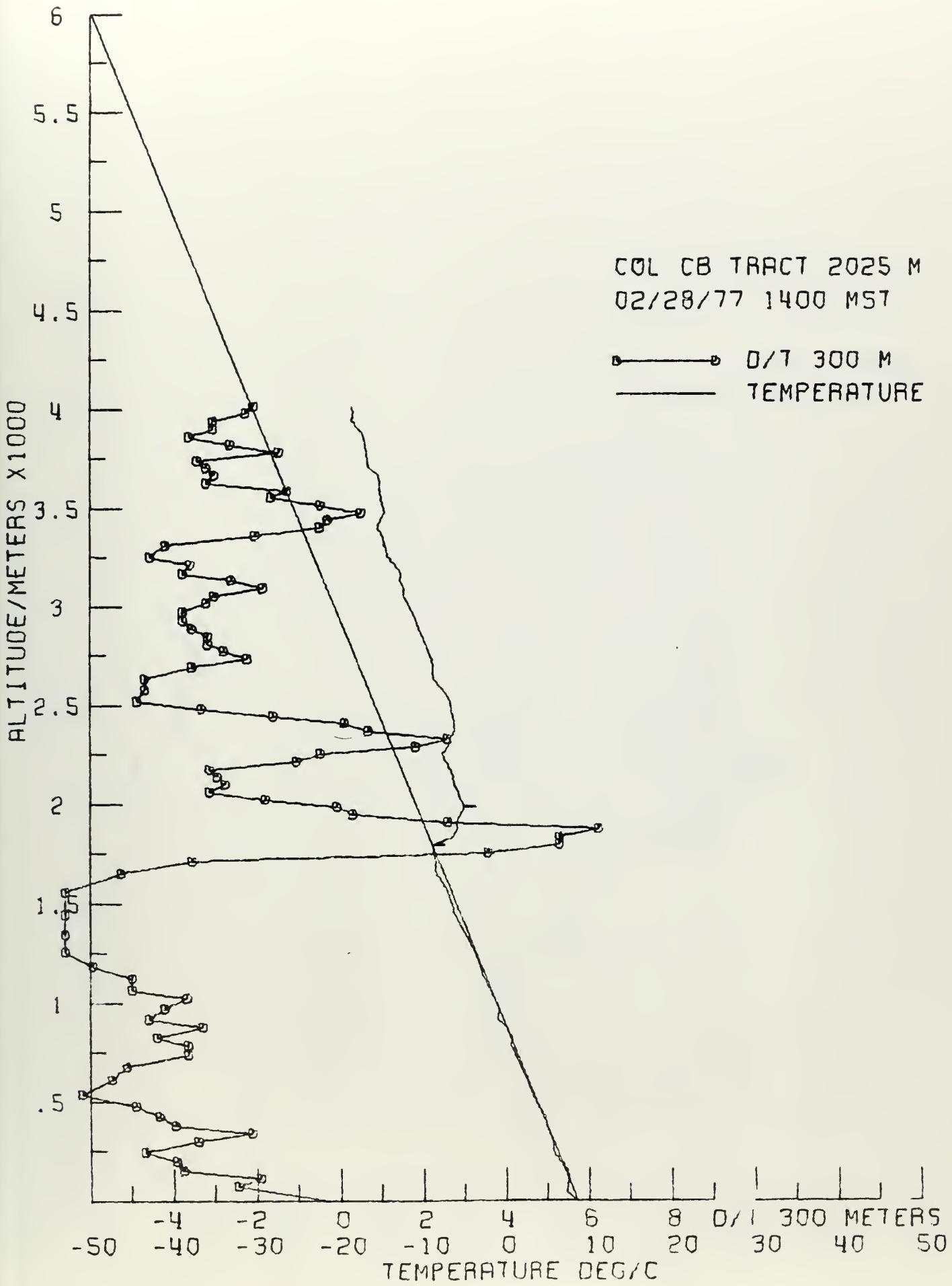


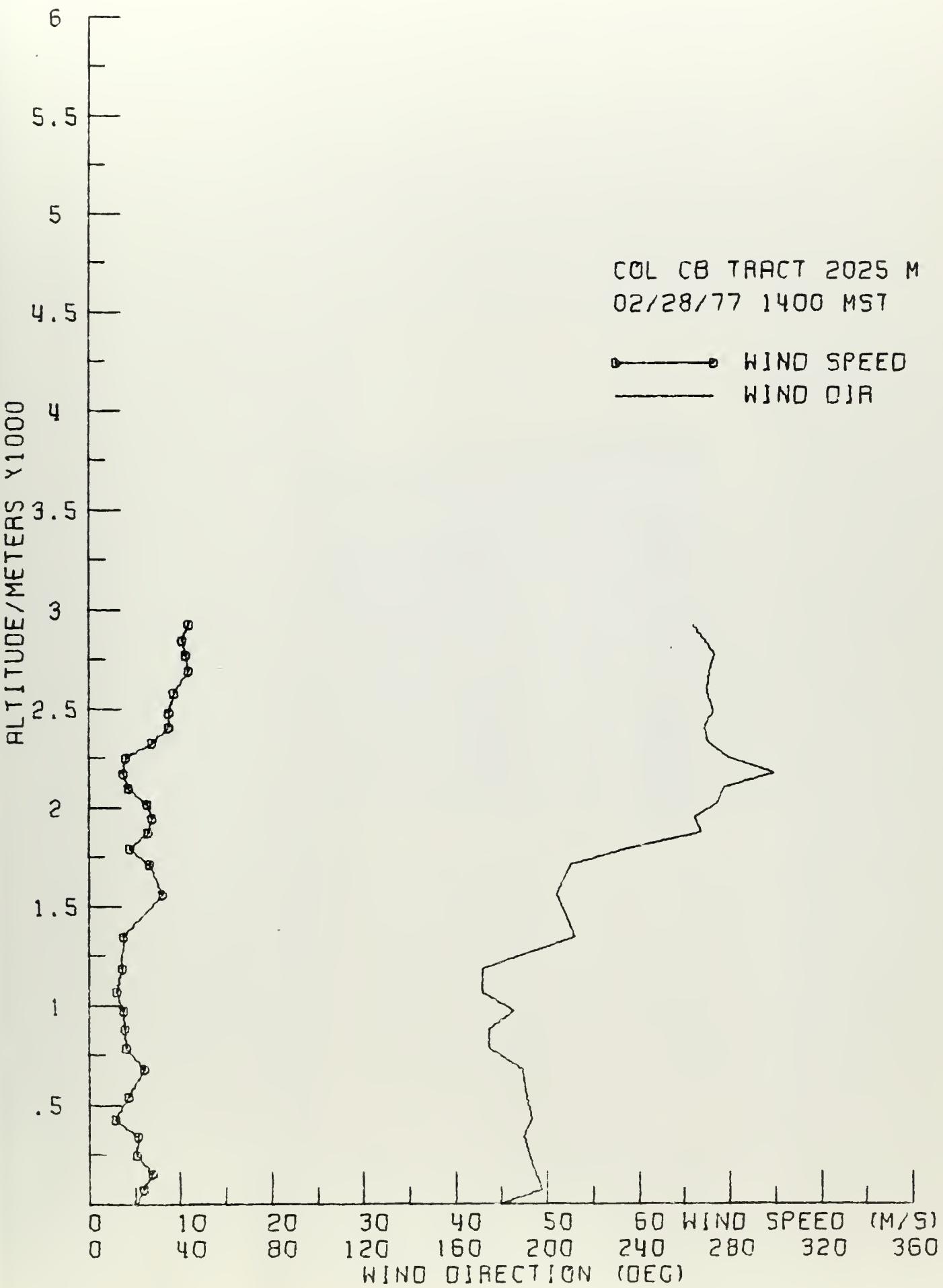












Form 1279-3
(June 1984)

BORROWER'S

IN 359, C4 CITY

NOTICE OF PROGRESS REPORT FOR THE PERIOD

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AREA OIL SHALE SUPERVISOR
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